OCT 28 2004
PATENT & TRADEMARK OFFICE

REPLACEMENT SHEET

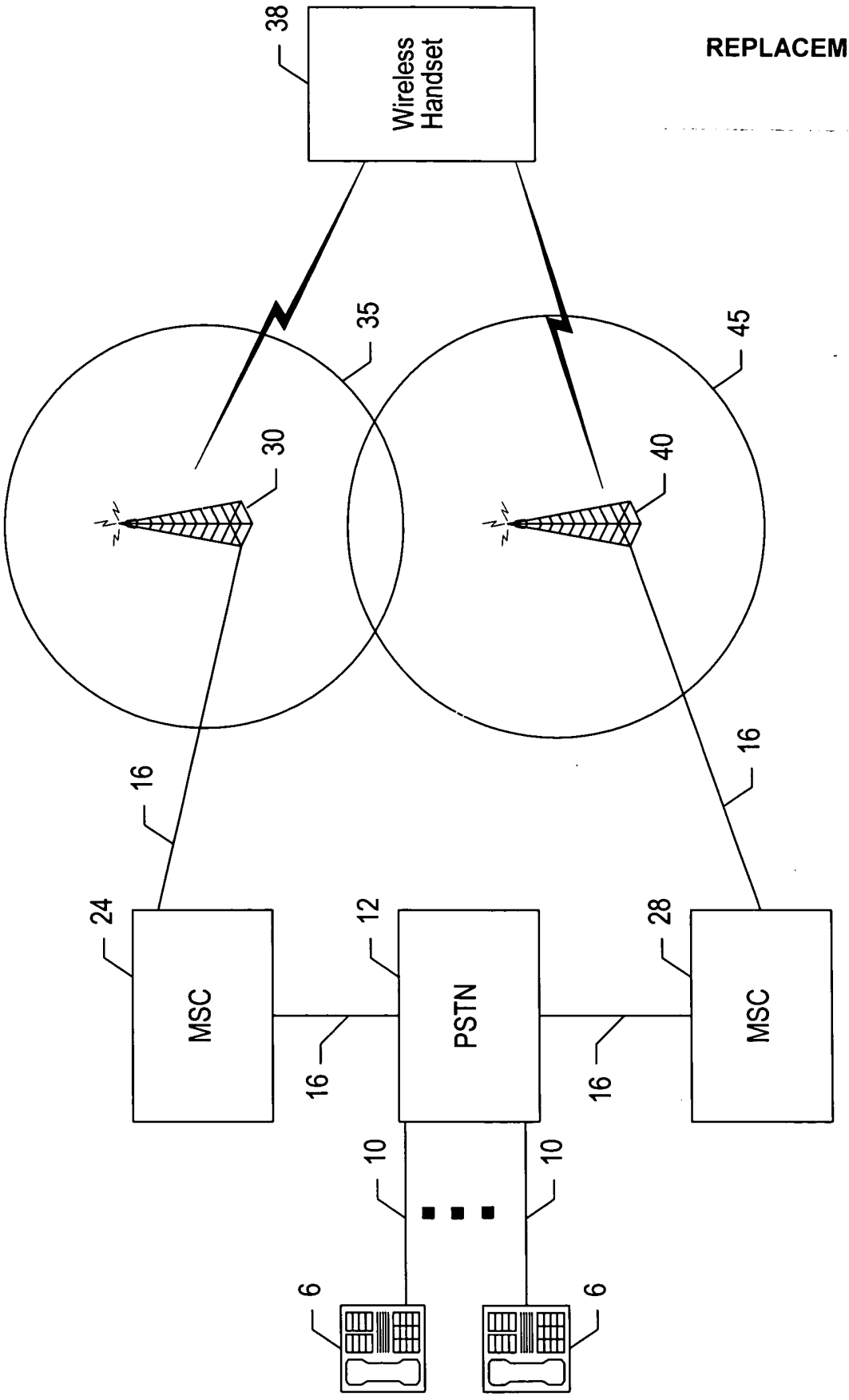


FIG. 1
(PRIOR ART)

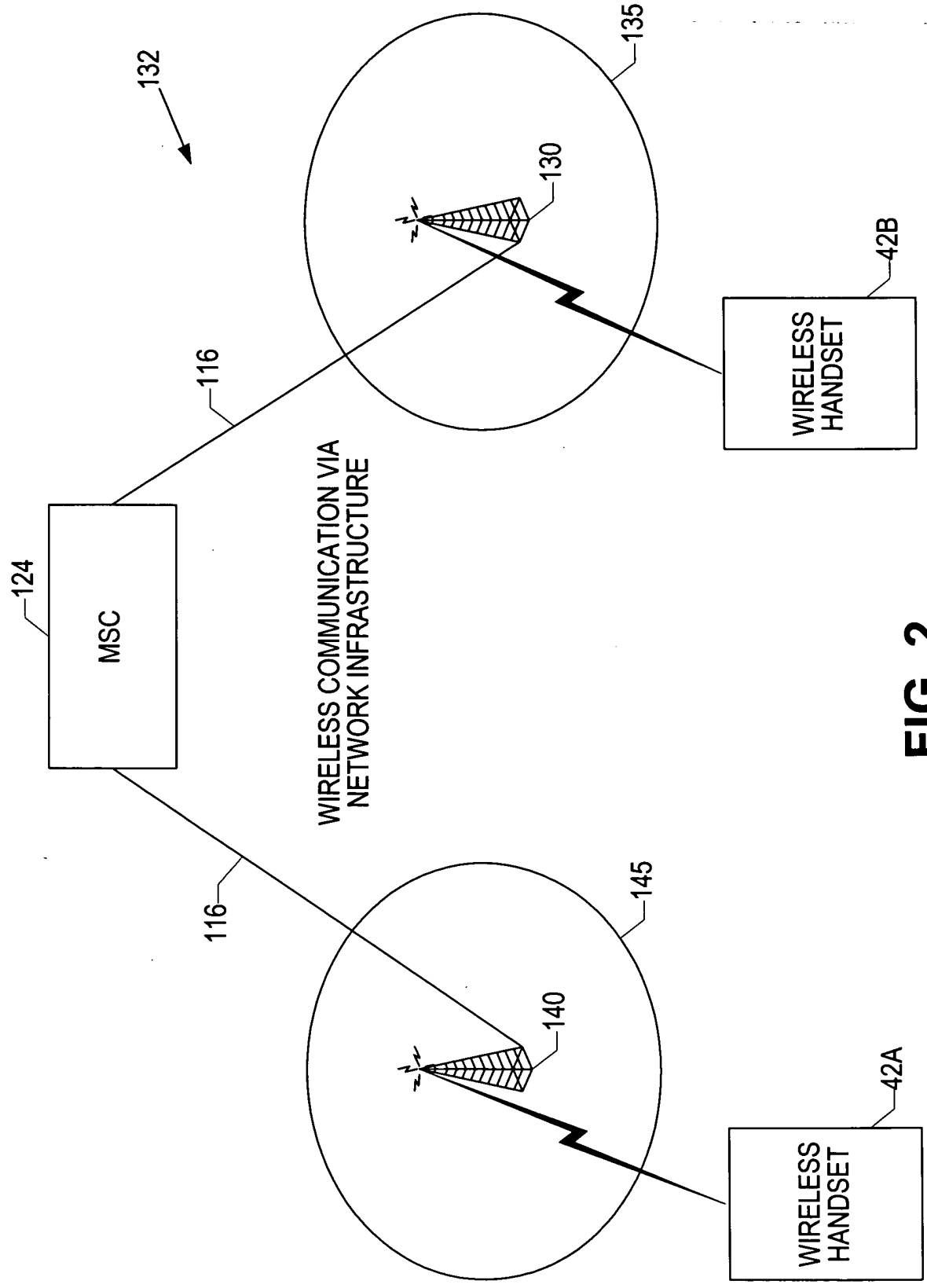

132
135
130
42B
WIRELESS HANDSET
116
WIRELESS COMMUNICATION VIA NETWORK INFRASTRUCTURE
124
MSC
116
145
140
42A
WIRELESS HANDSET

FIG. 2

REPLACEMENT SHEET

FIG. 3

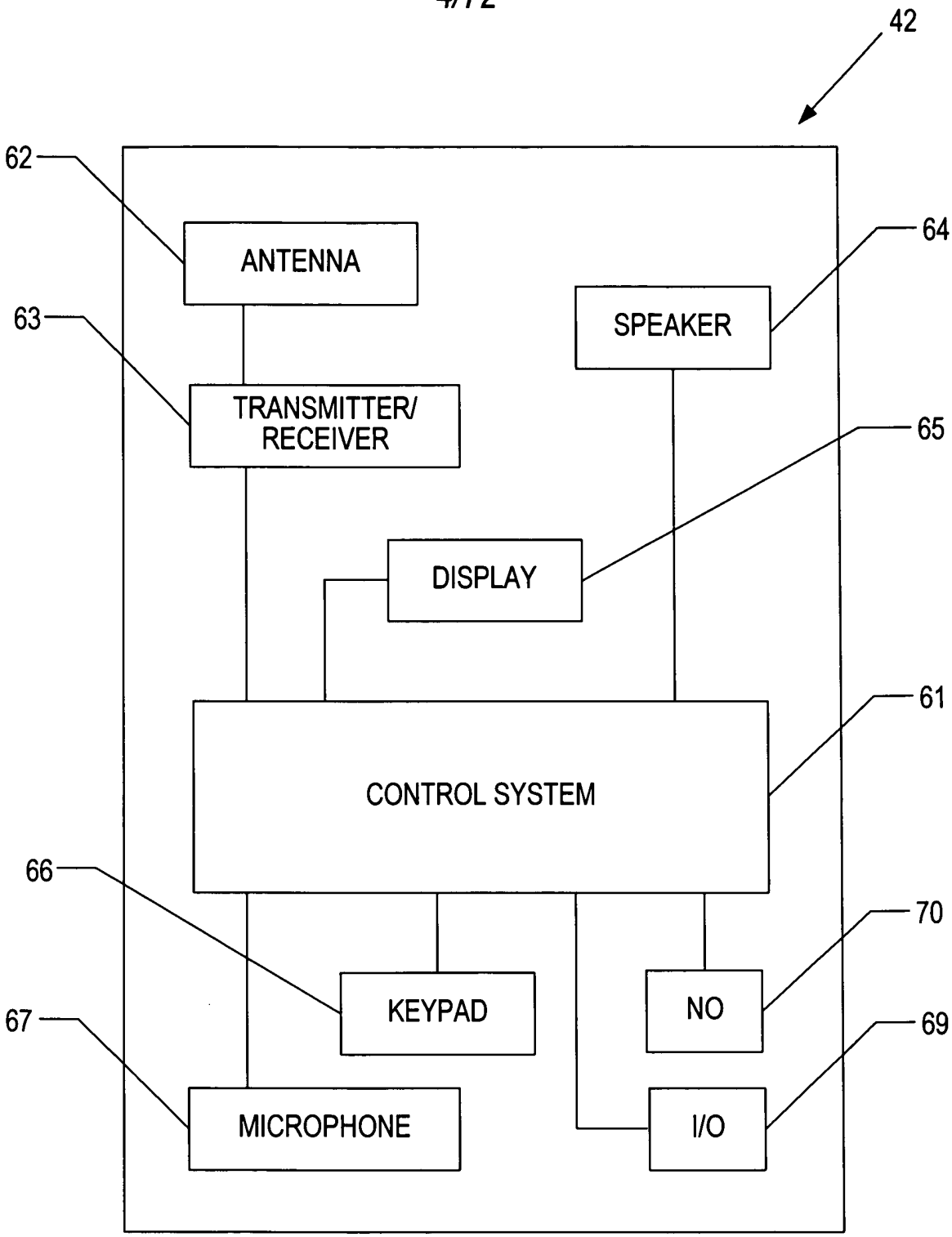

42
62
ANTENNA
64
63
SPEAKER
TRANSMITTER/
RECEIVER
65
DISPLAY
61
CONTROL SYSTEM
66
70
KEYPAD
NO
67
69
MICROPHONE
I/O

FIG. 4A

REPLACEMENT SHEET

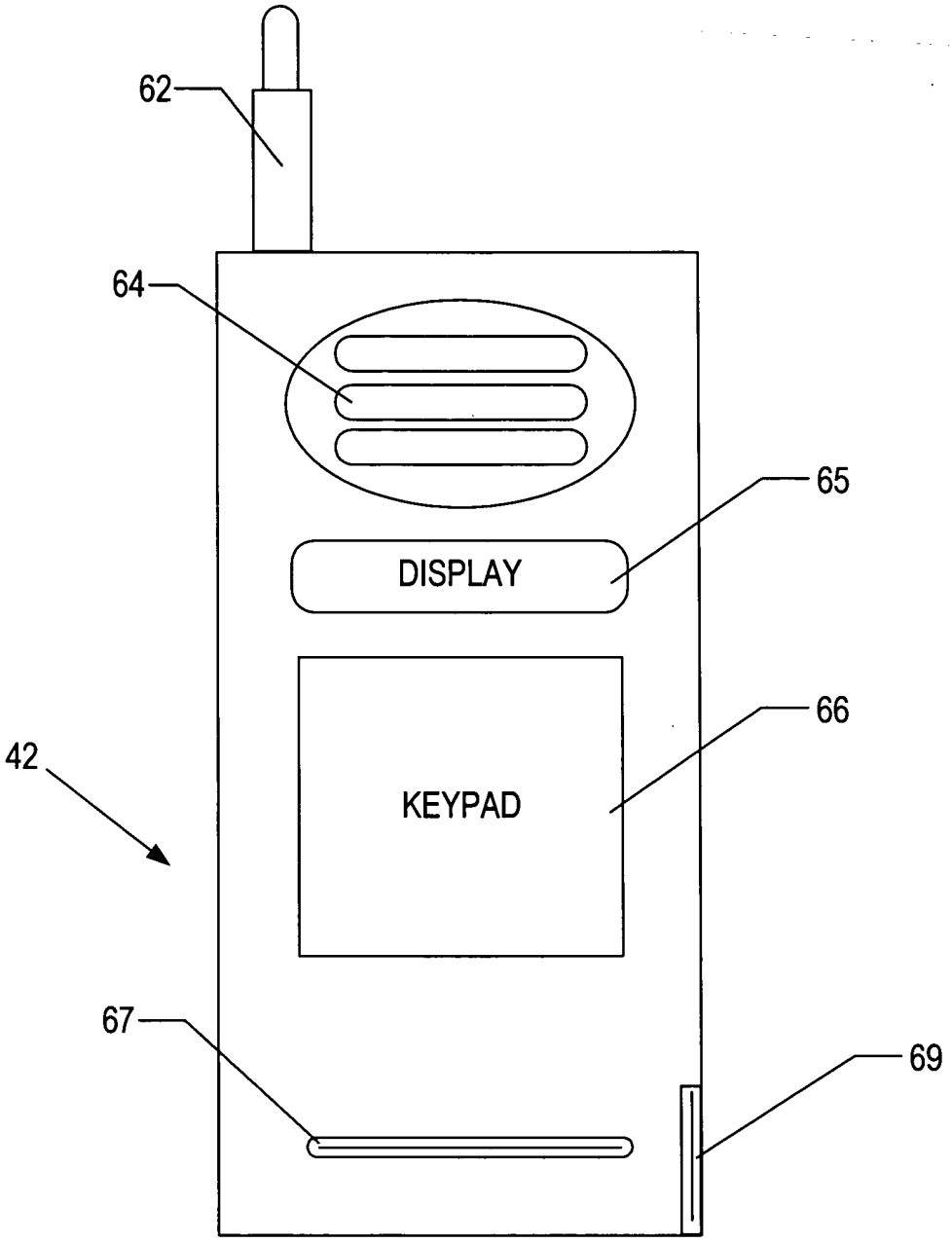


FIG. 4B

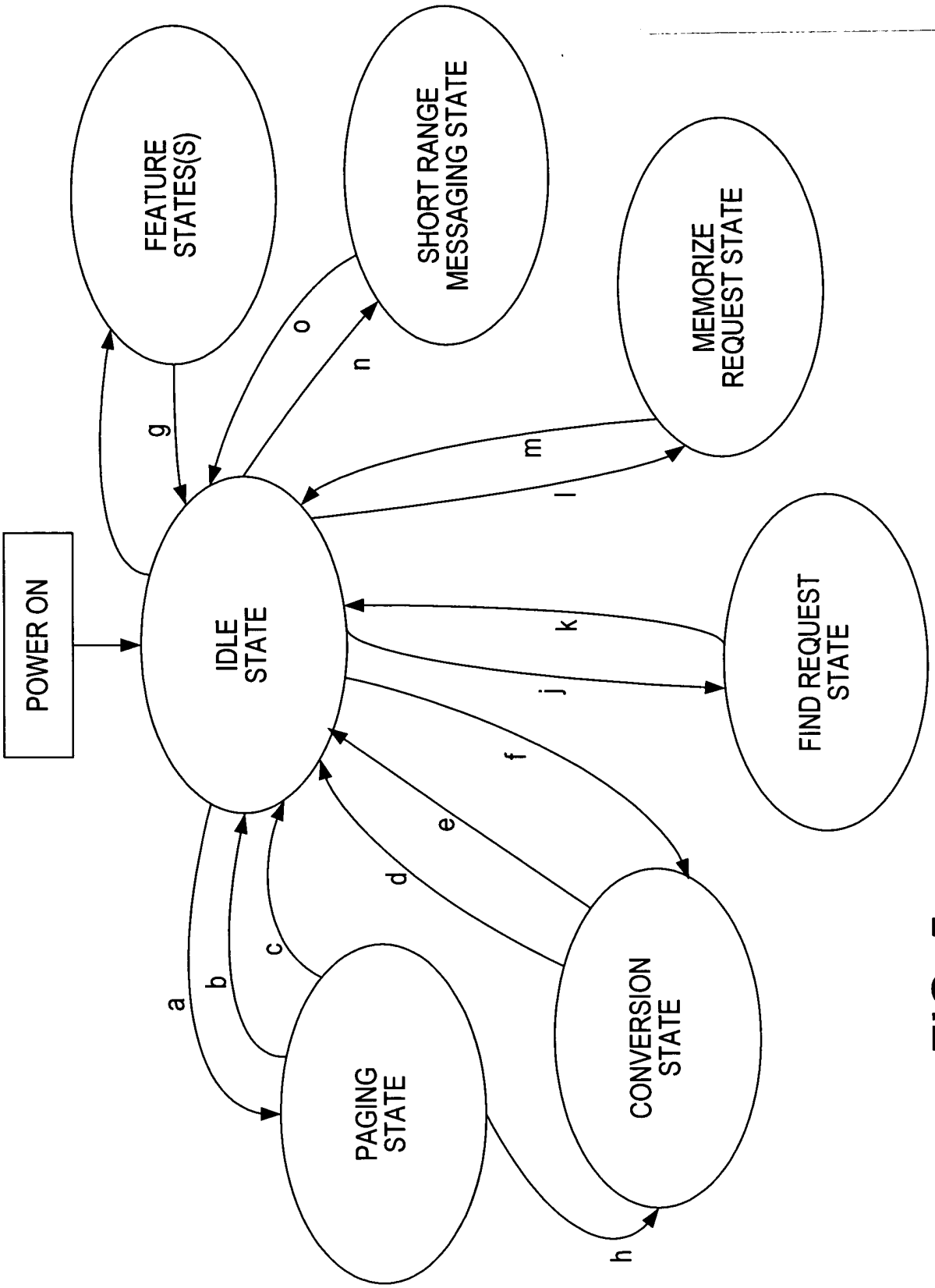
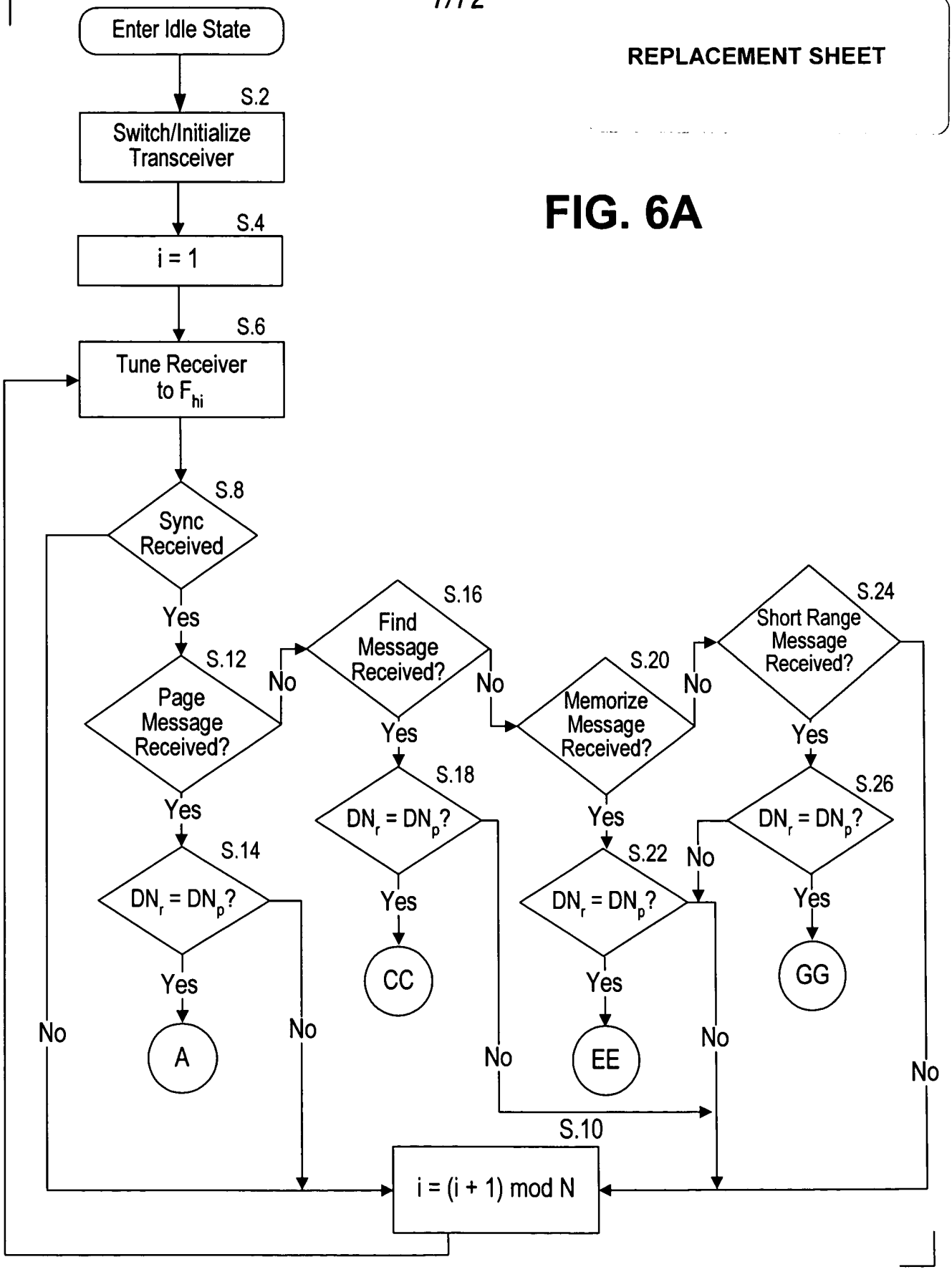

POWER ON
IDLE STATE
FEATURE STATES(S)
SHORT RANGE MESSAGING STATE
MEMORIZE REQUEST STATE
FIND REQUEST STATE
PAGING STATE
CONVERSION STATE
a
b
c
d
e
f
g
h
j
k
l
m
n
o

FIG. 5

REPLACEMENT SHEET

FIG. 6A



REPLACEMENT SHEET

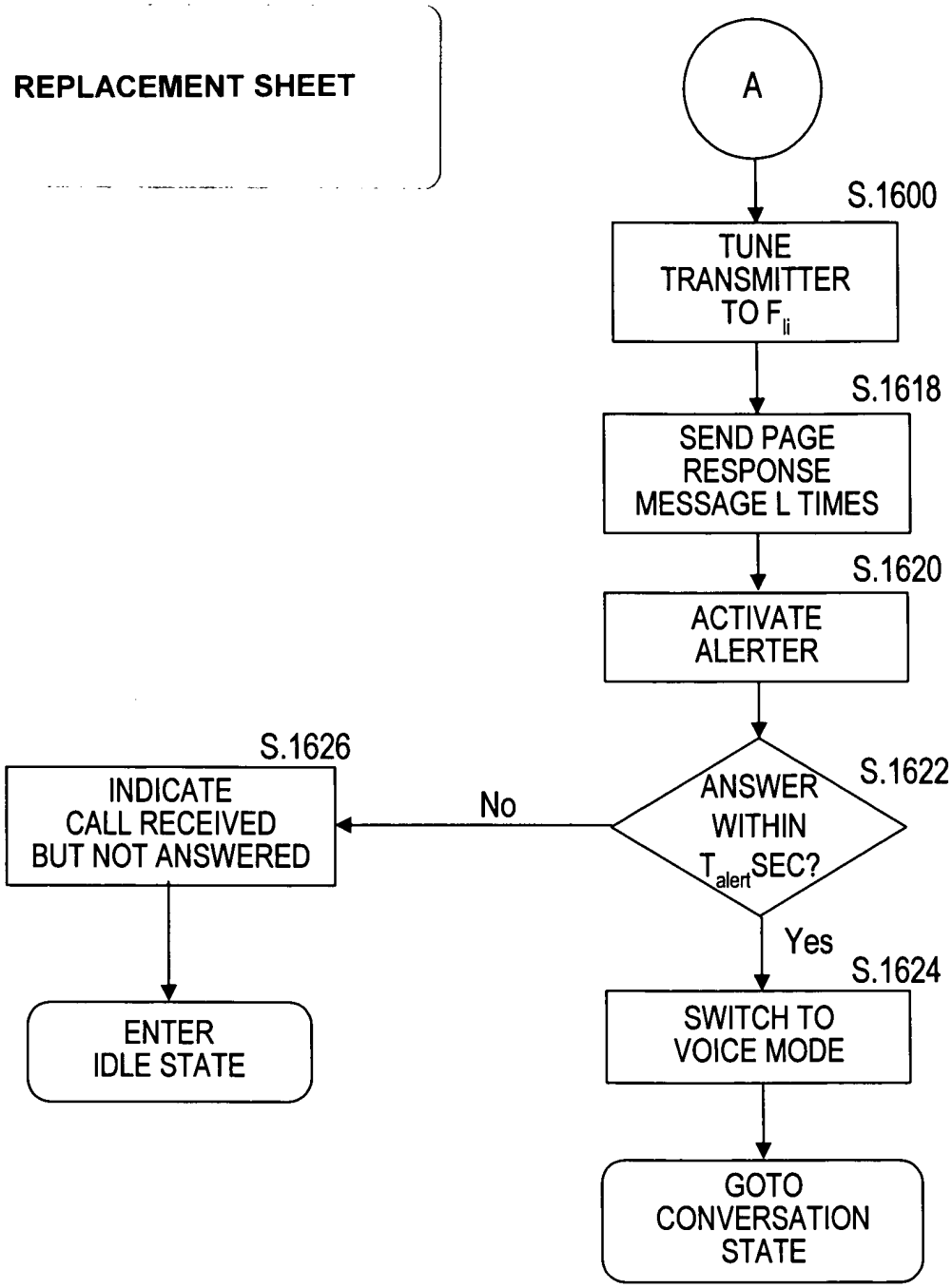


FIG. 6B

REPLACEMENT SHEET

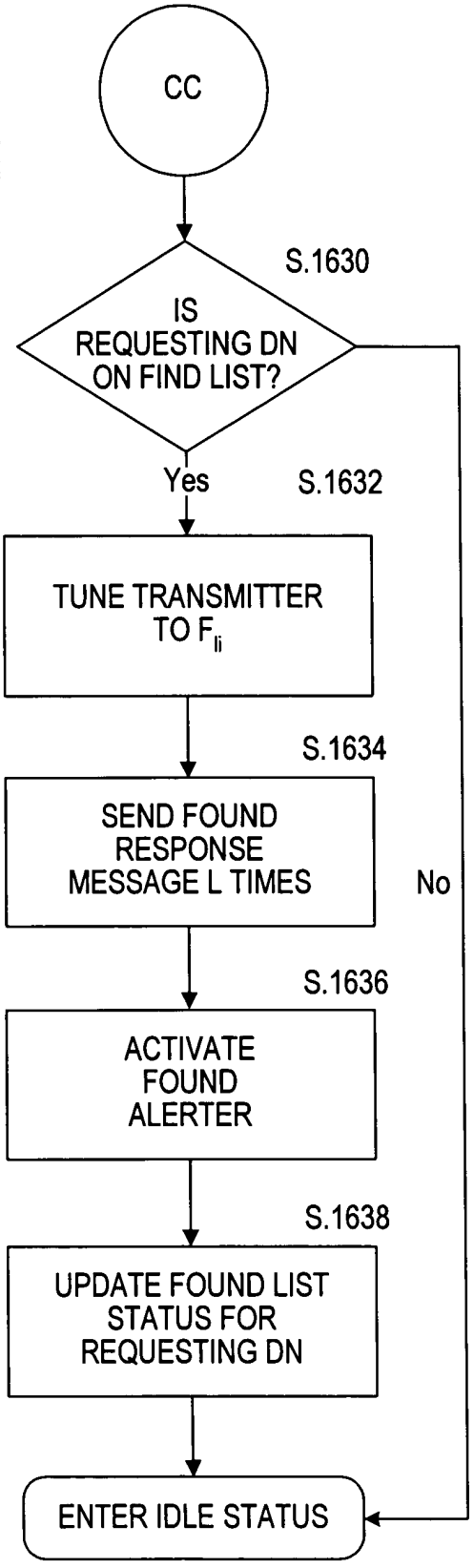


FIG. 6C

REPLACEMENT SHEET

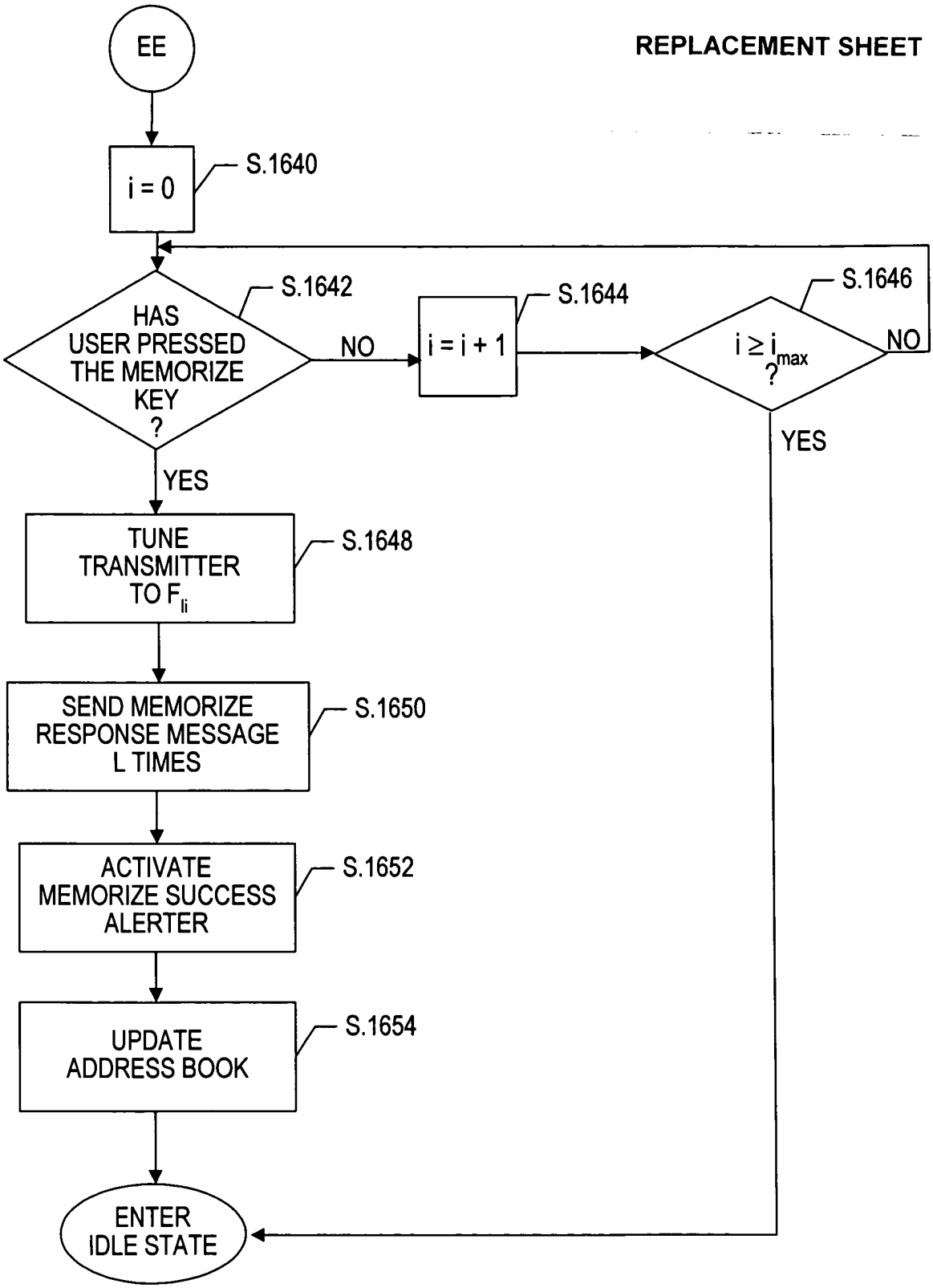


FIG. 6D

REPLACEMENT SHEET

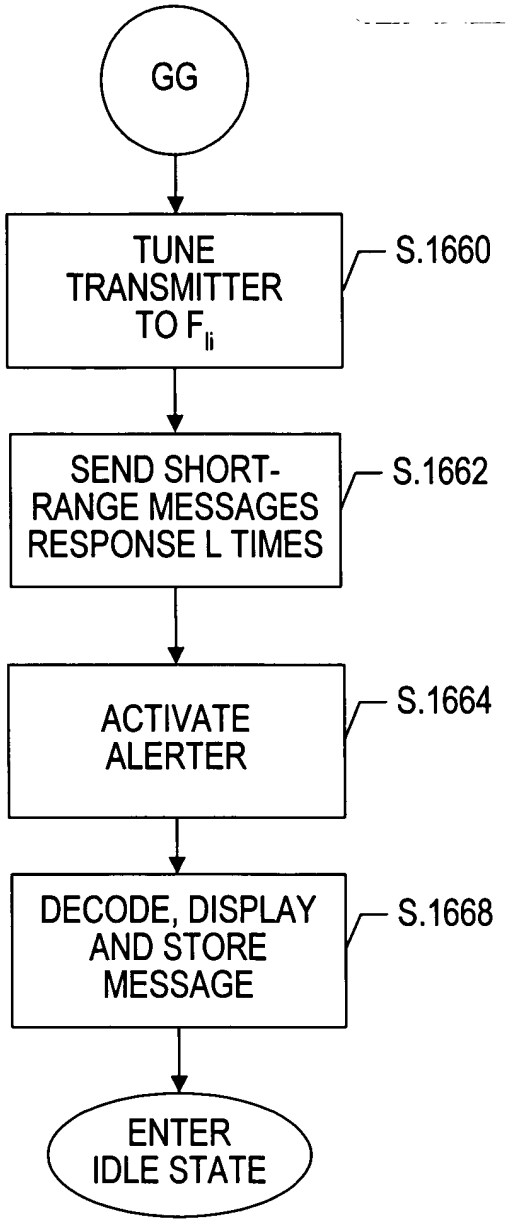


FIG. 6E

REPLACEMENT SHEET

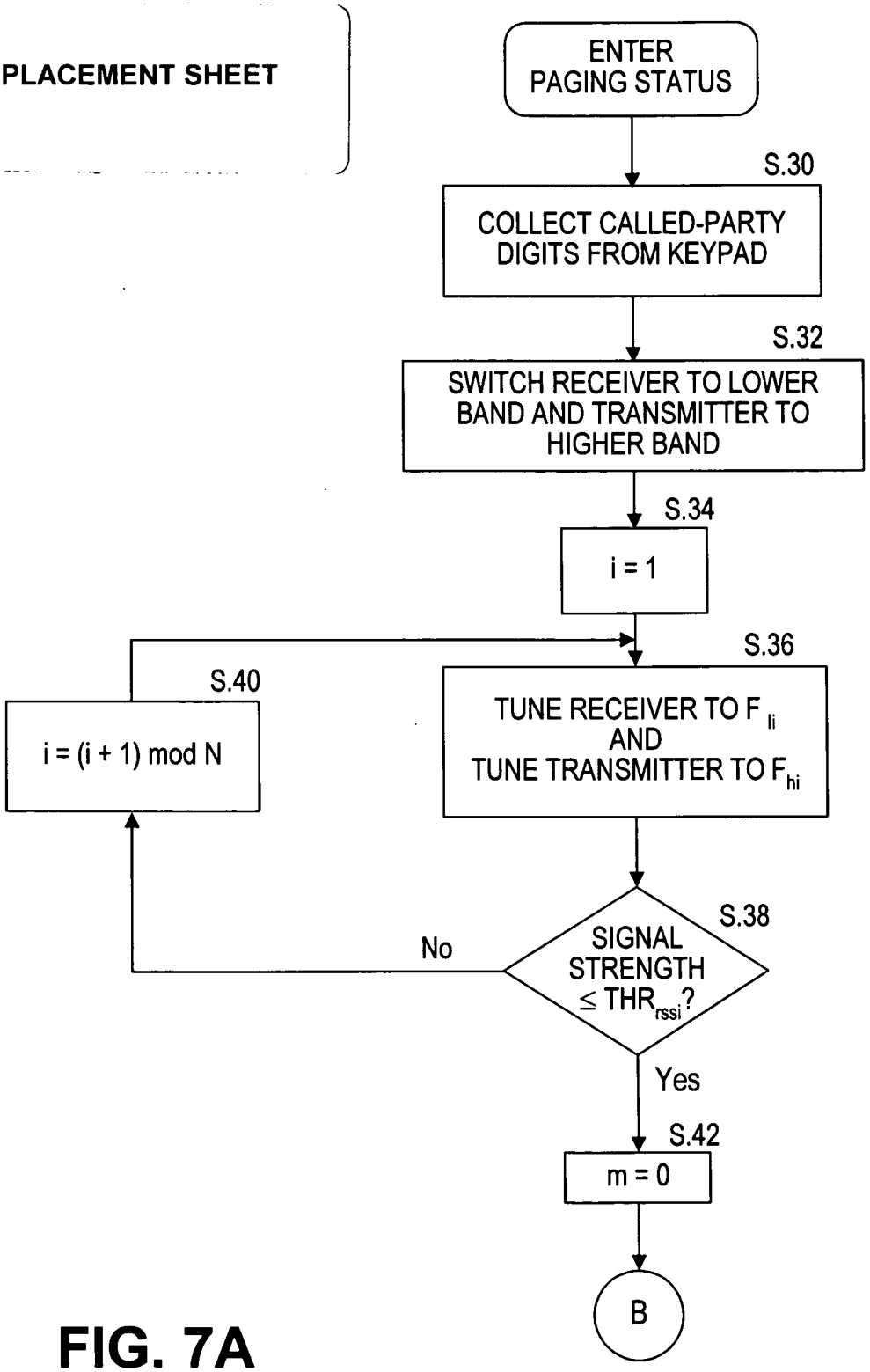


FIG. 7A

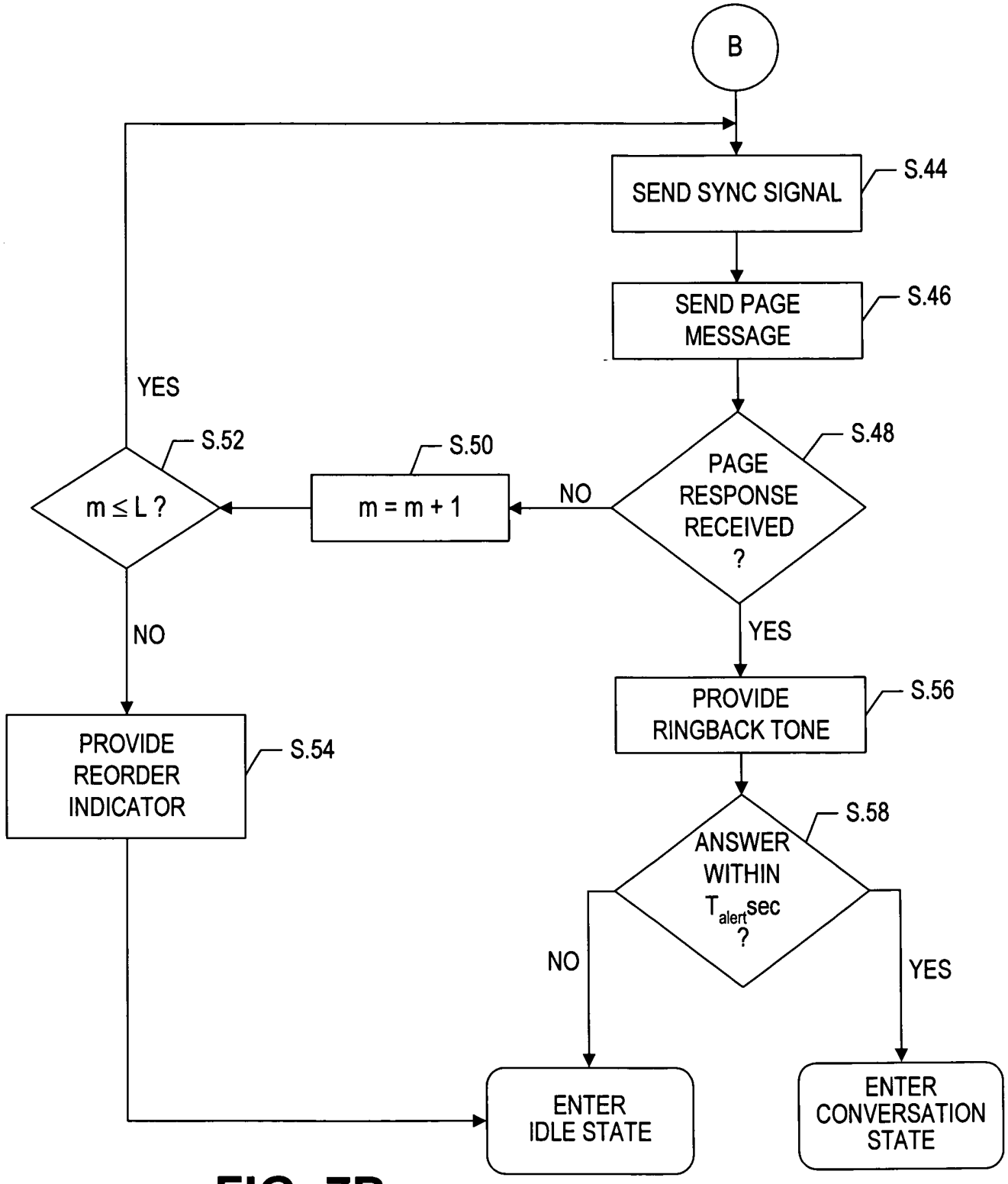

B
SEND SYNC SIGNAL
S.44
SEND PAGE MESSAGE
S.46
PAGE RESPONSE RECEIVED ?
S.48
NO
m = m + 1
S.50
m ≤ L ?
S.52
YES
NO
PROVIDE REORDER INDICATOR
S.54
YES
PROVIDE RINGBACK TONE
S.56
ANSWER WITHIN T_{alert} sec ?
S.58
NO
YES
ENTER IDLE STATE
ENTER CONVERSATION STATE

FIG. 7B

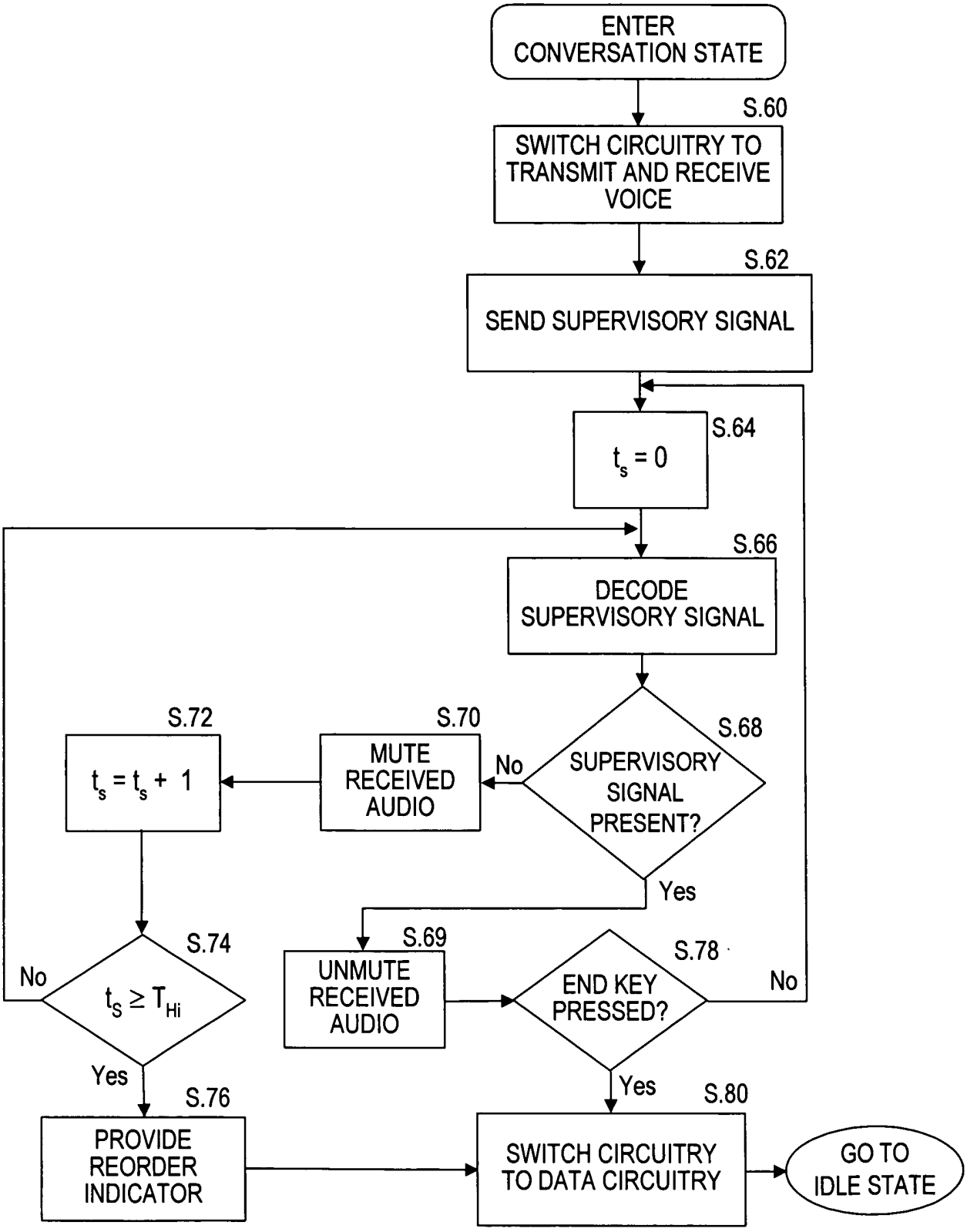

ENTER CONVERSATION STATE
S.60
SWITCH CIRCUITRY TO TRANSMIT AND RECEIVE VOICE
S.62
SEND SUPERVISORY SIGNAL
S.64
$t_s = 0$
S.66
DECODE SUPERVISORY SIGNAL
S.68
SUPERVISORY SIGNAL PRESENT?
No
S.70
MUTE RECEIVED AUDIO
S.72
$t_s = t_s + 1$
Yes
S.69
UNMUTE RECEIVED AUDIO
S.78
END KEY PRESSED?
No
Yes
S.74
$t_S \geq T_{Hi}$
No
Yes
S.76
PROVIDE REORDER INDICATOR
S.80
SWITCH CIRCUITRY TO DATA CIRCUITRY
GO TO IDLE STATE

FIG. 8

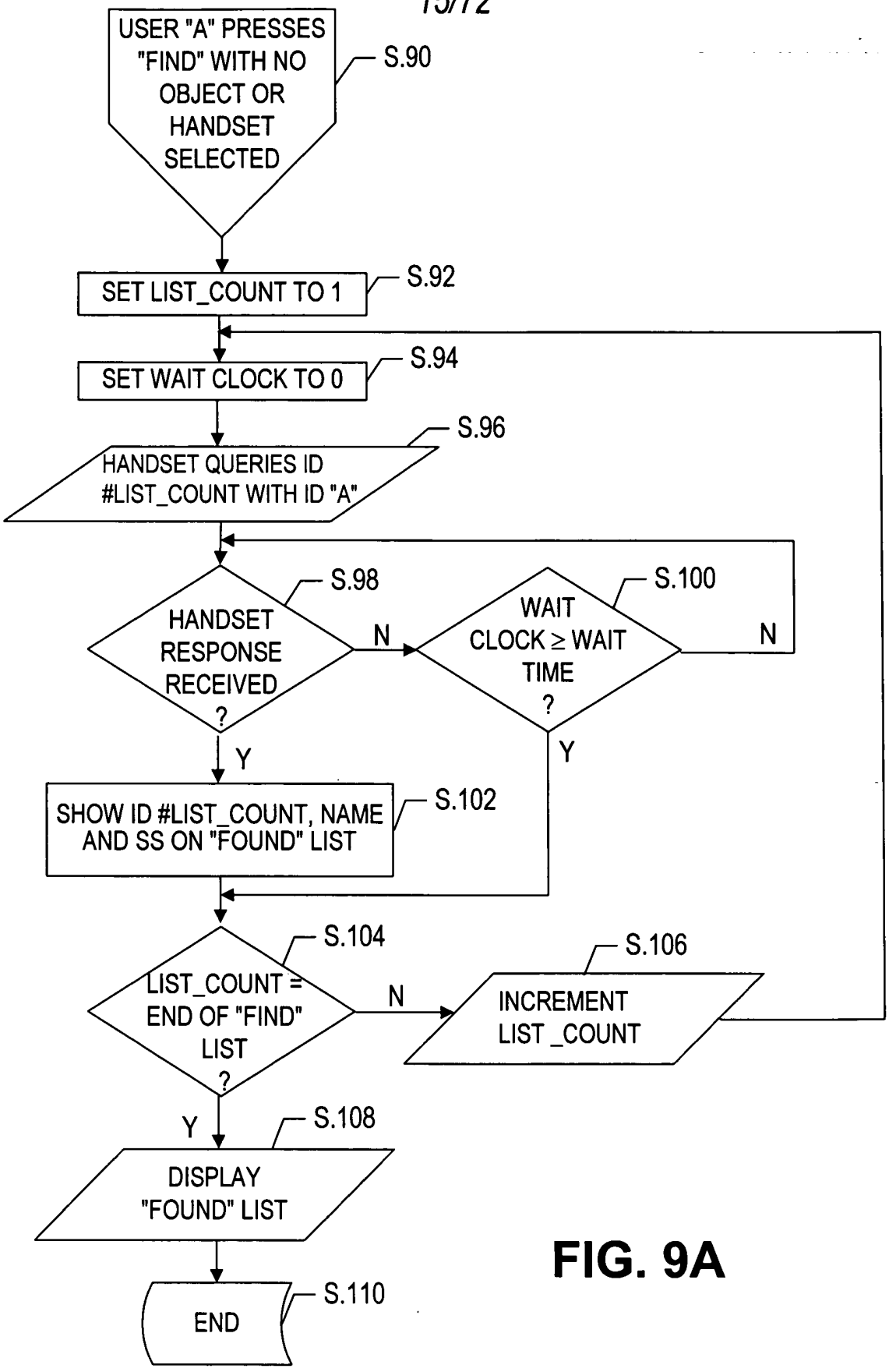

USER "A" PRESSES "FIND" WITH NO OBJECT OR HANDSET SELECTED
S.90
SET LIST_COUNT TO 1
S.92
SET WAIT CLOCK TO 0
S.94
HANDSET QUERIES ID #LIST_COUNT WITH ID "A"
S.96
HANDSET RESPONSE RECEIVED ?
S.98
N
WAIT CLOCK ≥ WAIT TIME ?
S.100
N
Y
Y
SHOW ID #LIST_COUNT, NAME AND SS ON "FOUND" LIST
S.102
LIST_COUNT = END OF "FIND" LIST ?
S.104
N
INCREMENT LIST _COUNT
S.106
Y
DISPLAY "FOUND" LIST
S.108
END
S.110

FIG. 9A

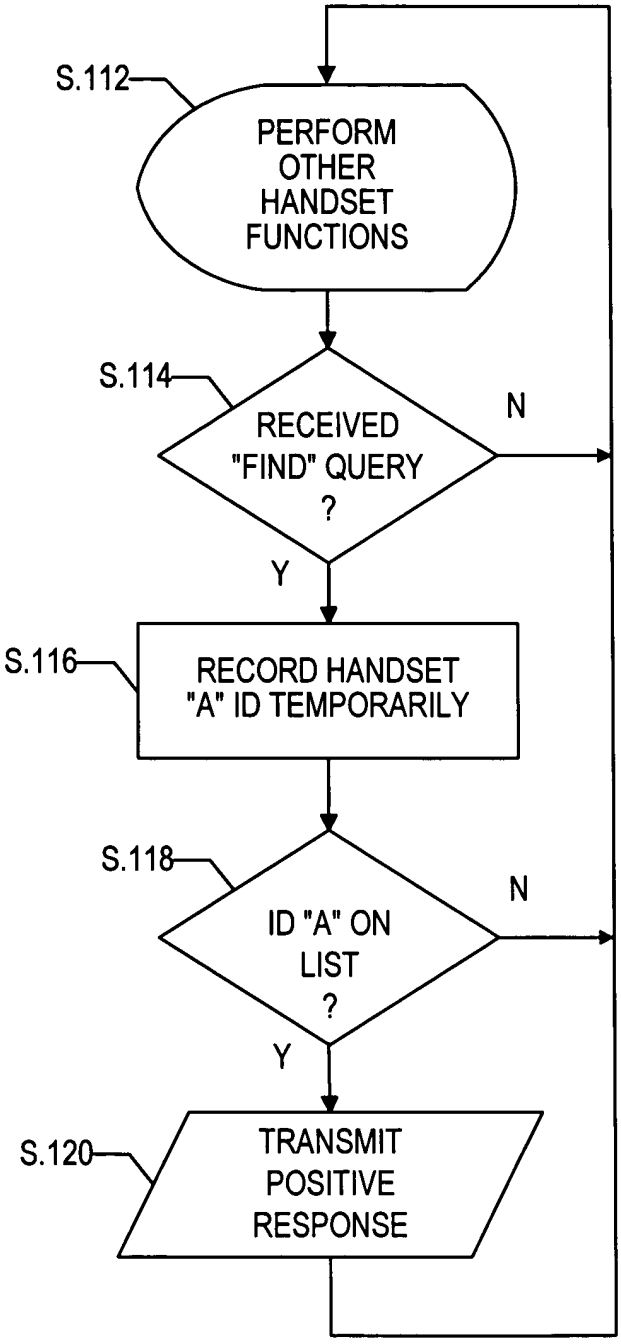

S.112
PERFORM OTHER HANDSET FUNCTIONS
S.114
RECEIVED "FIND" QUERY ?
N
Y
S.116
RECORD HANDSET "A" ID TEMPORARILY
S.118
ID "A" ON LIST ?
N
Y
S.120
TRANSMIT POSITIVE RESPONSE

FIG. 9B

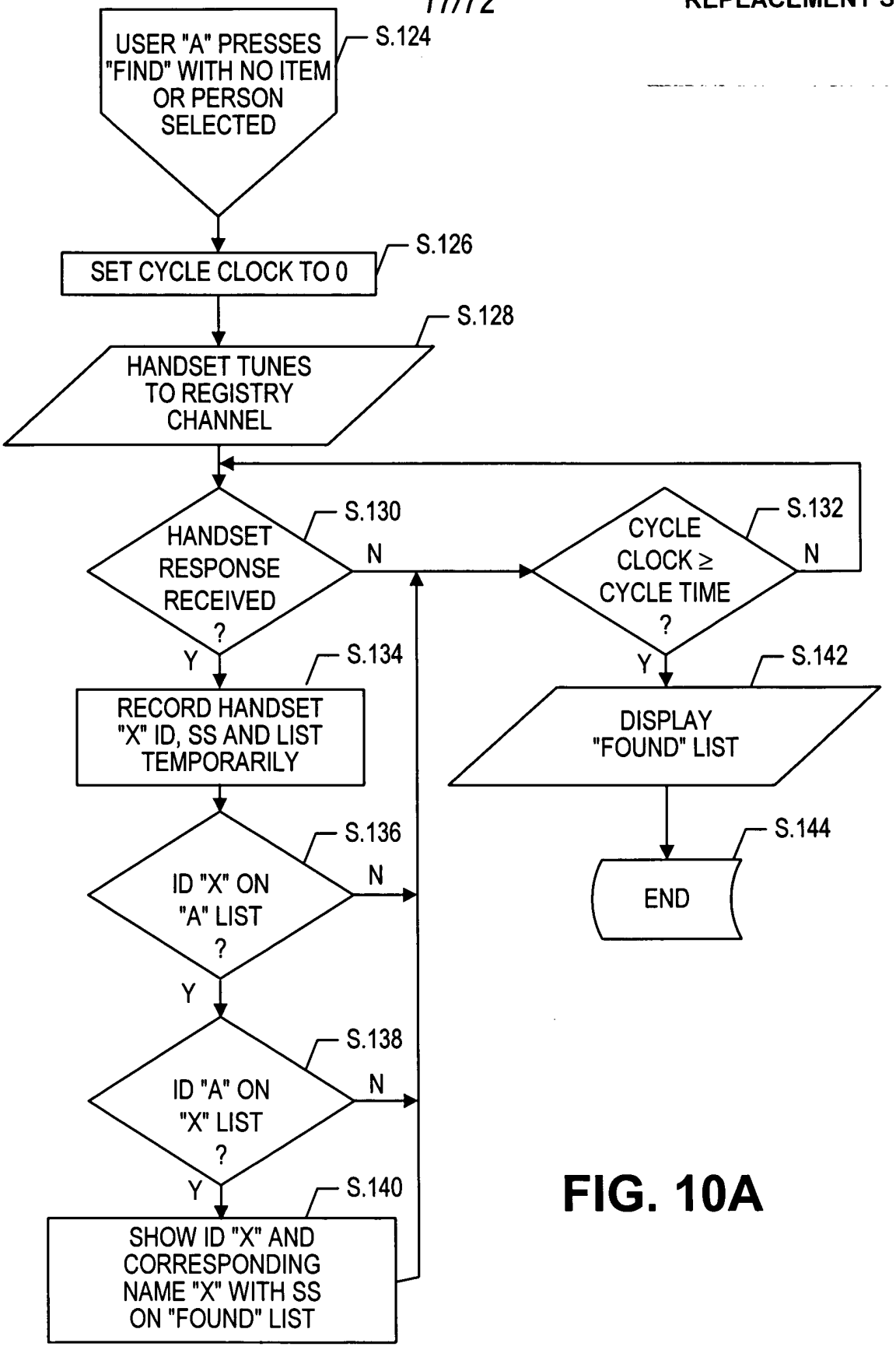

USER "A" PRESSES "FIND" WITH NO ITEM OR PERSON SELECTED
S.124
SET CYCLE CLOCK TO 0
S.126
HANDSET TUNES TO REGISTRY CHANNEL
S.128
HANDSET RESPONSE RECEIVED ?
S.130
N
Y
CYCLE CLOCK ≥ CYCLE TIME ?
S.132
N
Y
RECORD HANDSET "X" ID, SS AND LIST TEMPORARILY
S.134
DISPLAY "FOUND" LIST
S.142
ID "X" ON "A" LIST ?
S.136
N
Y
END
S.144
ID "A" ON "X" LIST ?
S.138
N
Y
SHOW ID "X" AND CORRESPONDING NAME "X" WITH SS ON "FOUND" LIST
S.140

FIG. 10A

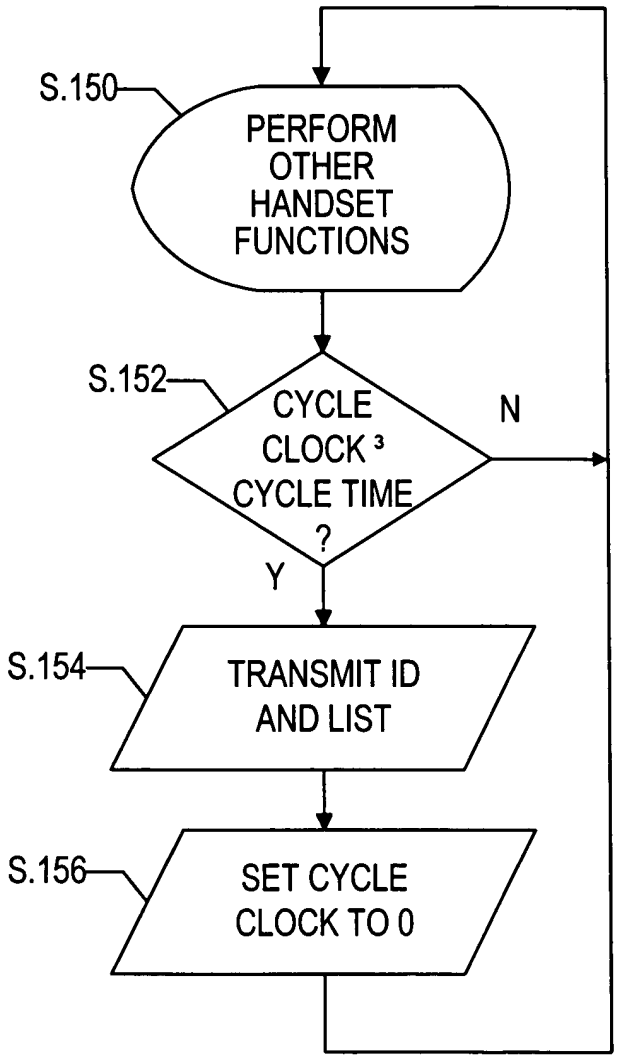

S.150
PERFORM OTHER HANDSET FUNCTIONS
S.152
CYCLE CLOCK 3 CYCLE TIME ?
N
Y
S.154
TRANSMIT ID AND LIST
S.156
SET CYCLE CLOCK TO 0

FIG. 10B

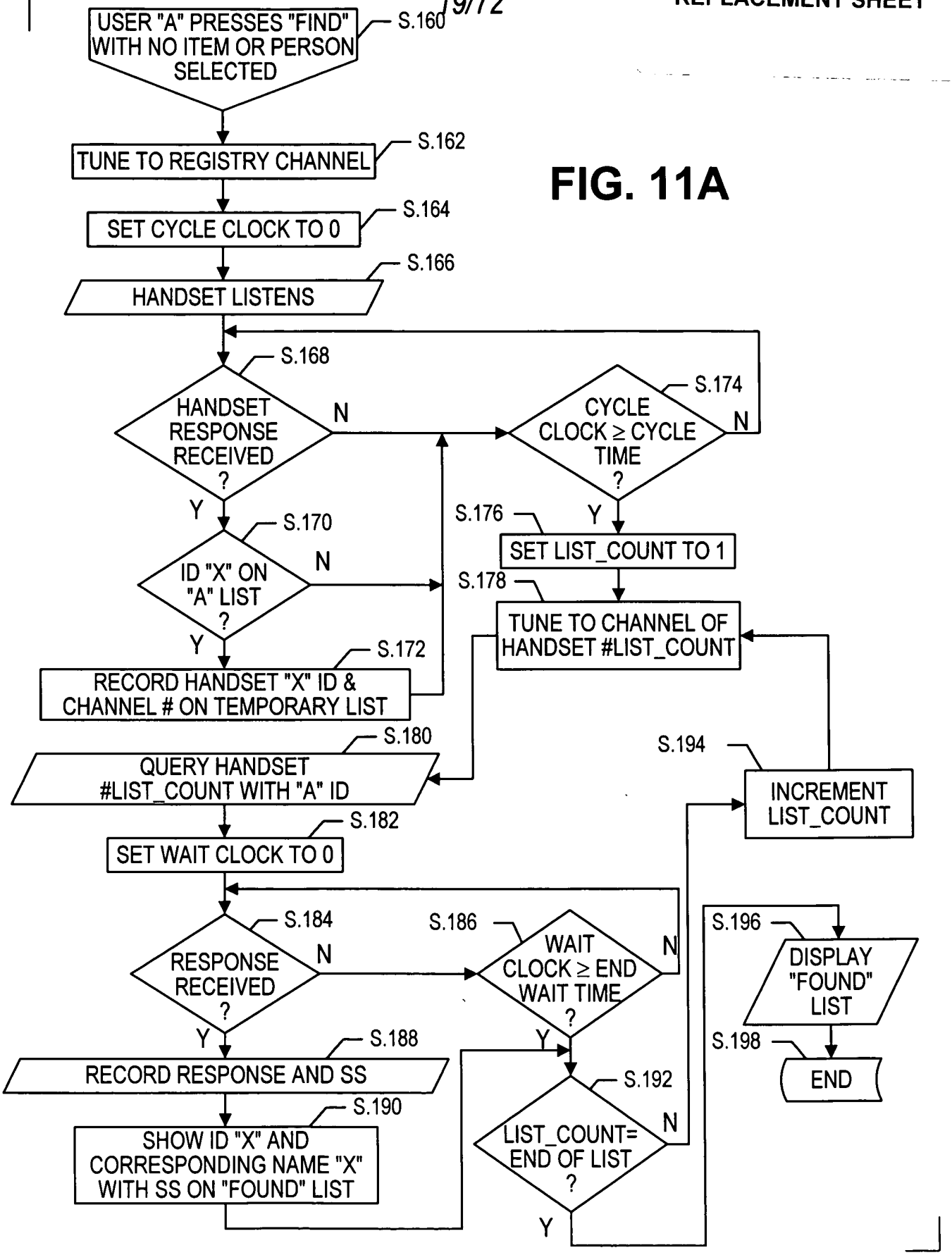

USER "A" PRESSES "FIND" WITH NO ITEM OR PERSON SELECTED
S.160
TUNE TO REGISTRY CHANNEL
S.162
SET CYCLE CLOCK TO 0
S.164
HANDSET LISTENS
S.166
S.168
HANDSET RESPONSE RECEIVED ?
N
Y
S.170
ID "X" ON "A" LIST ?
N
Y
S.172
RECORD HANDSET "X" ID & CHANNEL # ON TEMPORARY LIST
S.174
CYCLE CLOCK ≥ CYCLE TIME ?
N
Y
S.176
SET LIST_COUNT TO 1
S.178
TUNE TO CHANNEL OF HANDSET #LIST_COUNT
S.180
QUERY HANDSET #LIST_COUNT WITH "A" ID
S.182
SET WAIT CLOCK TO 0
S.184
RESPONSE RECEIVED ?
N
Y
S.186
WAIT CLOCK ≥ END WAIT TIME ?
N
Y
S.188
RECORD RESPONSE AND SS
S.190
SHOW ID "X" AND CORRESPONDING NAME "X" WITH SS ON "FOUND" LIST
S.192
LIST_COUNT= END OF LIST ?
N
Y
S.194
INCREMENT LIST_COUNT
S.196
DISPLAY "FOUND" LIST
S.198
END

FIG. 11A

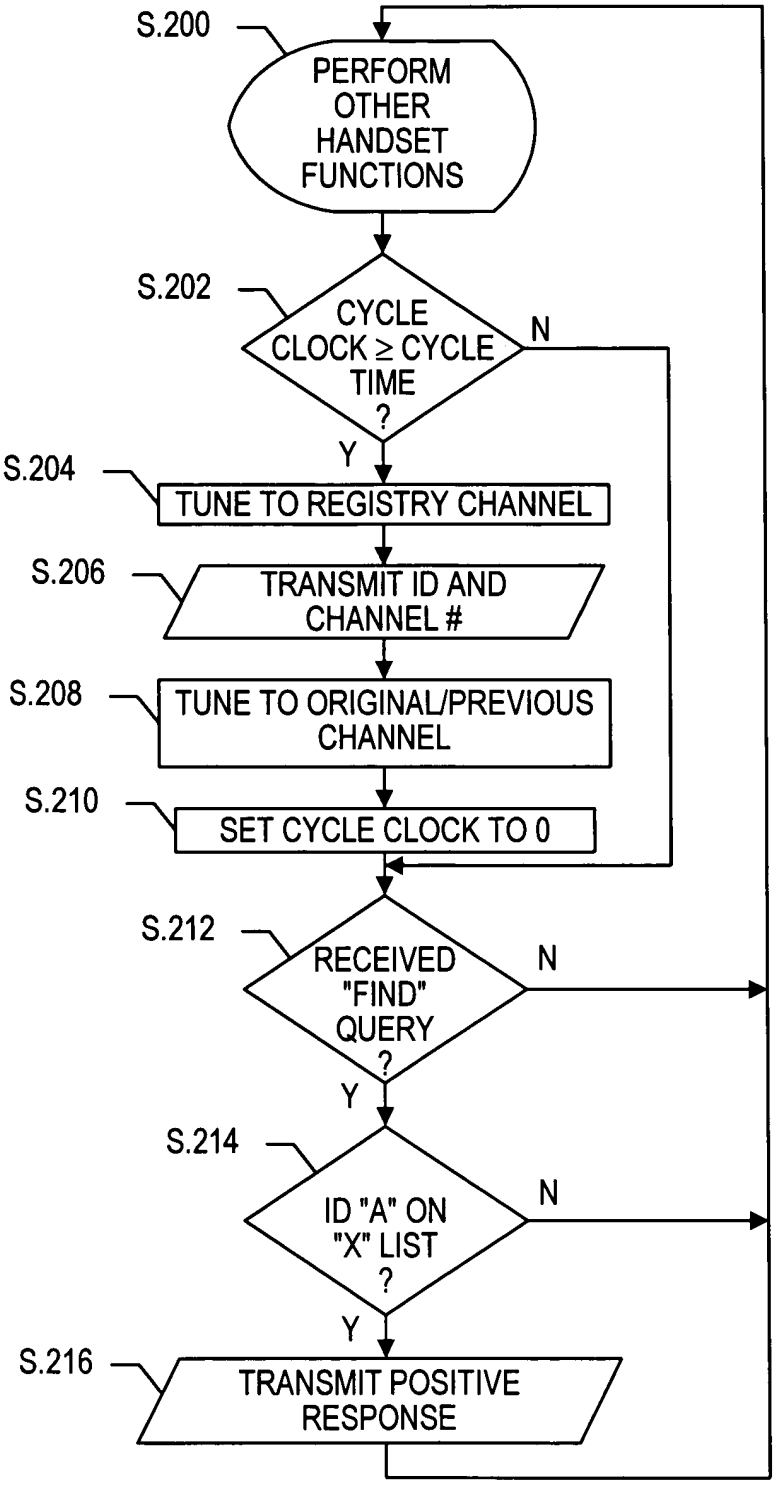
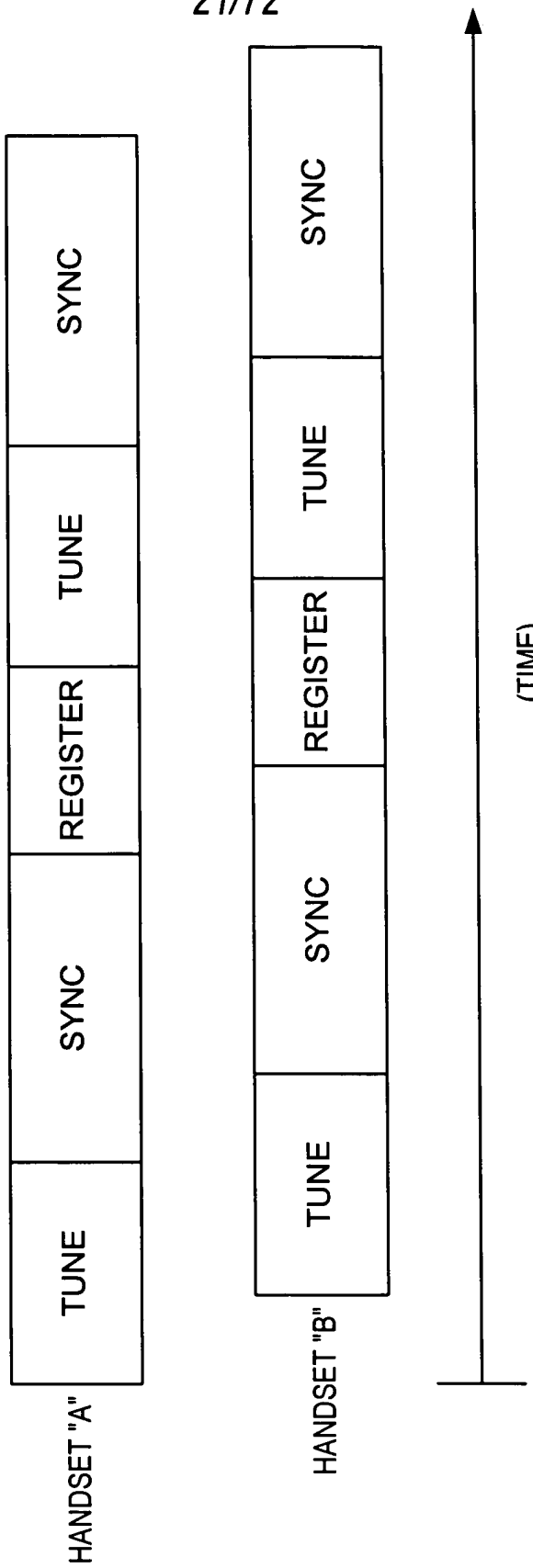

S.200
PERFORM OTHER HANDSET FUNCTIONS
S.202
CYCLE CLOCK ≥ CYCLE TIME ?
N
Y
S.204
TUNE TO REGISTRY CHANNEL
S.206
TRANSMIT ID AND CHANNEL #
S.208
TUNE TO ORIGINAL/PREVIOUS CHANNEL
S.210
SET CYCLE CLOCK TO 0
S.212
RECEIVED "FIND" QUERY ?
N
Y
S.214
ID "A" ON "X" LIST ?
N
Y
S.216
TRANSMIT POSITIVE RESPONSE

FIG. 11B

FIG. 11C


TUNE
SYNC
REGISTER
TUNE
SYNC
HANDSET "A"
TUNE
SYNC
REGISTER
TUNE
SYNC
HANDSET "B"
(TIME)

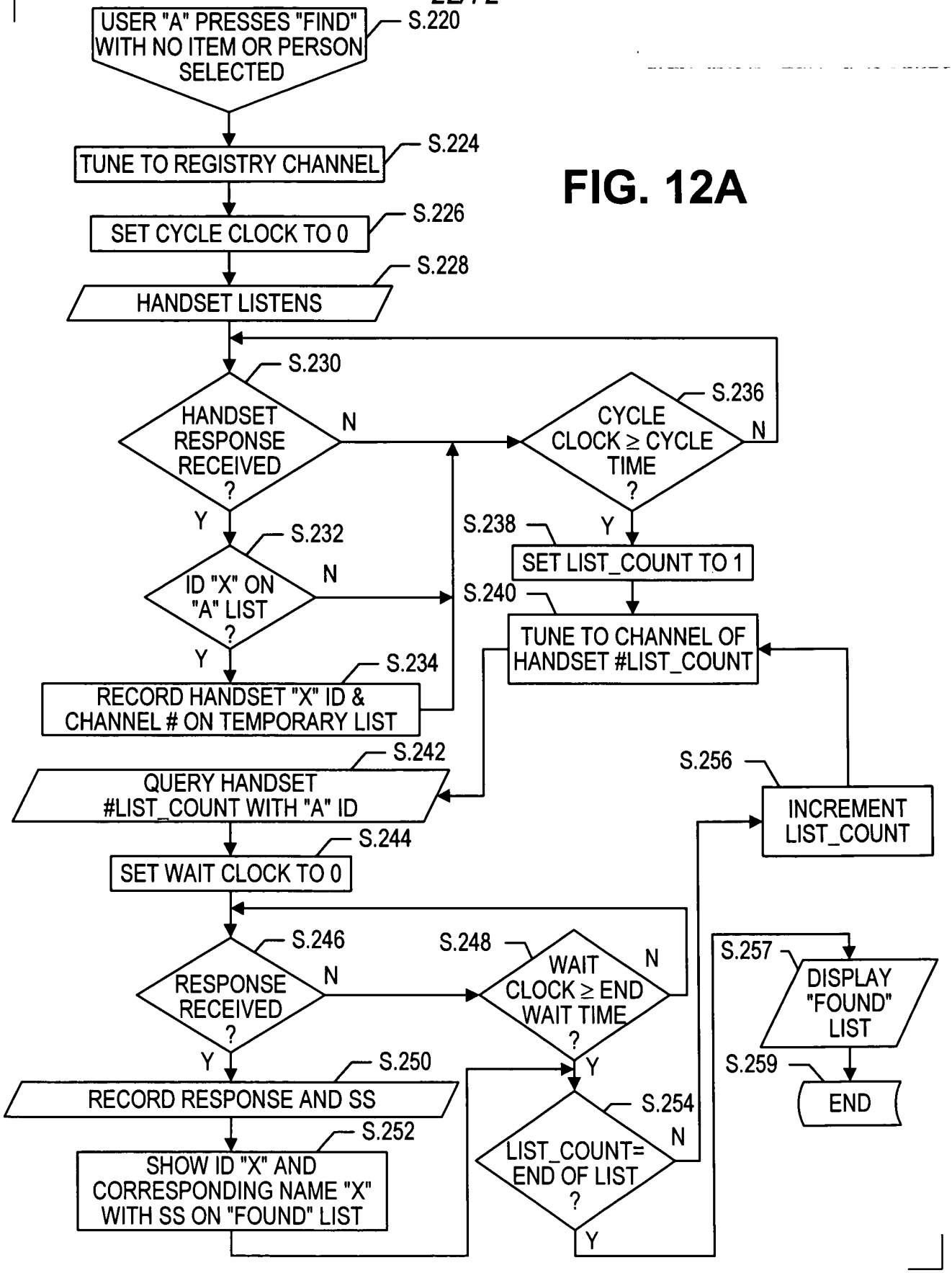
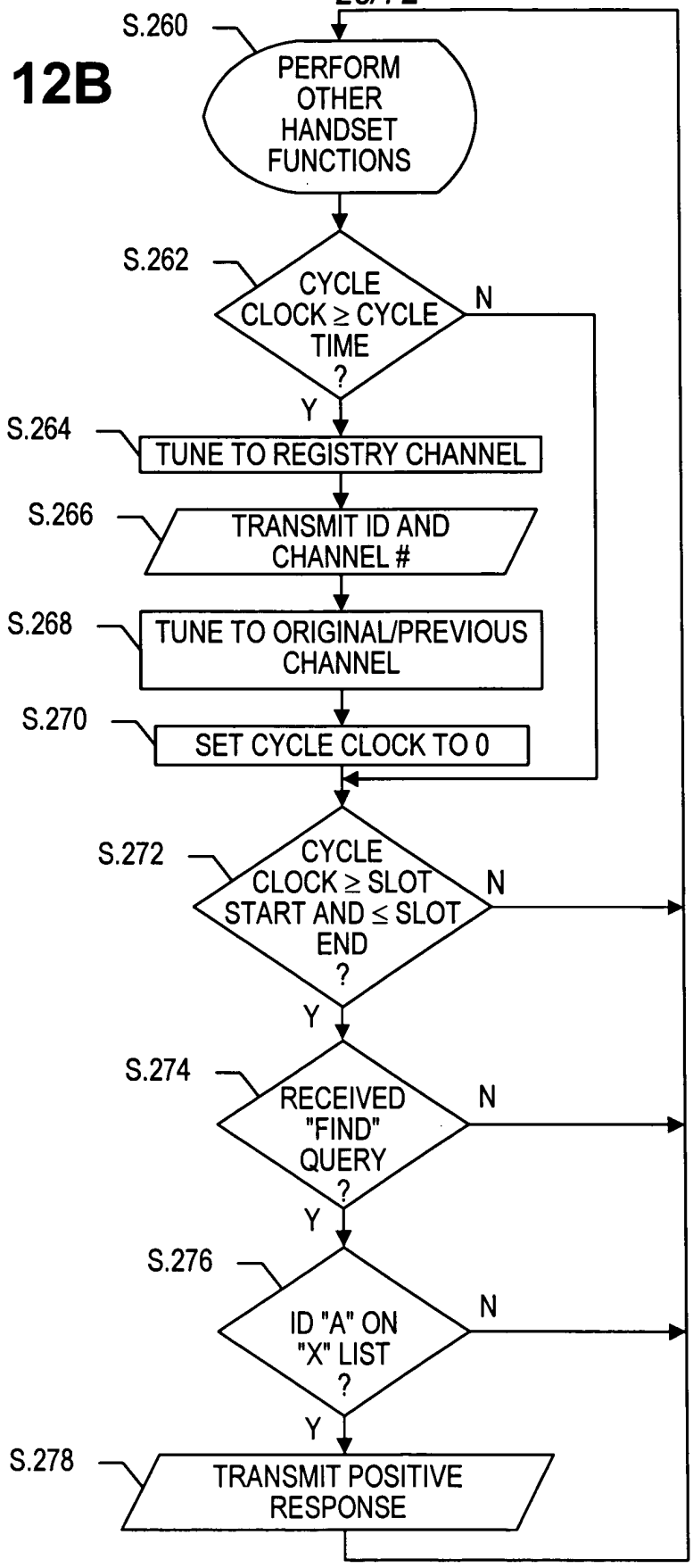

USER "A" PRESSES "FIND" WITH NO ITEM OR PERSON SELECTED
S.220
TUNE TO REGISTRY CHANNEL
S.224
SET CYCLE CLOCK TO 0
S.226
HANDSET LISTENS
S.228
S.230
HANDSET RESPONSE RECEIVED ?
N
Y
S.232
ID "X" ON "A" LIST ?
N
Y
S.234
RECORD HANDSET "X" ID & CHANNEL # ON TEMPORARY LIST
S.236
CYCLE CLOCK ≥ CYCLE TIME ?
N
Y
S.238
SET LIST_COUNT TO 1
S.240
TUNE TO CHANNEL OF HANDSET #LIST_COUNT
S.242
QUERY HANDSET #LIST_COUNT WITH "A" ID
S.244
SET WAIT CLOCK TO 0
S.246
RESPONSE RECEIVED ?
N
Y
S.248
WAIT CLOCK ≥ END WAIT TIME ?
N
Y
S.250
RECORD RESPONSE AND SS
S.252
SHOW ID "X" AND CORRESPONDING NAME "X" WITH SS ON "FOUND" LIST
S.254
LIST_COUNT= END OF LIST ?
N
Y
S.256
INCREMENT LIST_COUNT
S.257
DISPLAY "FOUND" LIST
S.259
END

FIG. 12A

FIG. 12B


S.260
PERFORM OTHER HANDSET FUNCTIONS
S.262
CYCLE CLOCK ≥ CYCLE TIME ?
N
Y
S.264
TUNE TO REGISTRY CHANNEL
S.266
TRANSMIT ID AND CHANNEL #
S.268
TUNE TO ORIGINAL/PREVIOUS CHANNEL
S.270
SET CYCLE CLOCK TO 0
S.272
CYCLE CLOCK ≥ SLOT START AND ≤ SLOT END ?
N
Y
S.274
RECEIVED "FIND" QUERY ?
N
Y
S.276
ID "A" ON "X" LIST ?
N
Y
S.278
TRANSMIT POSITIVE RESPONSE

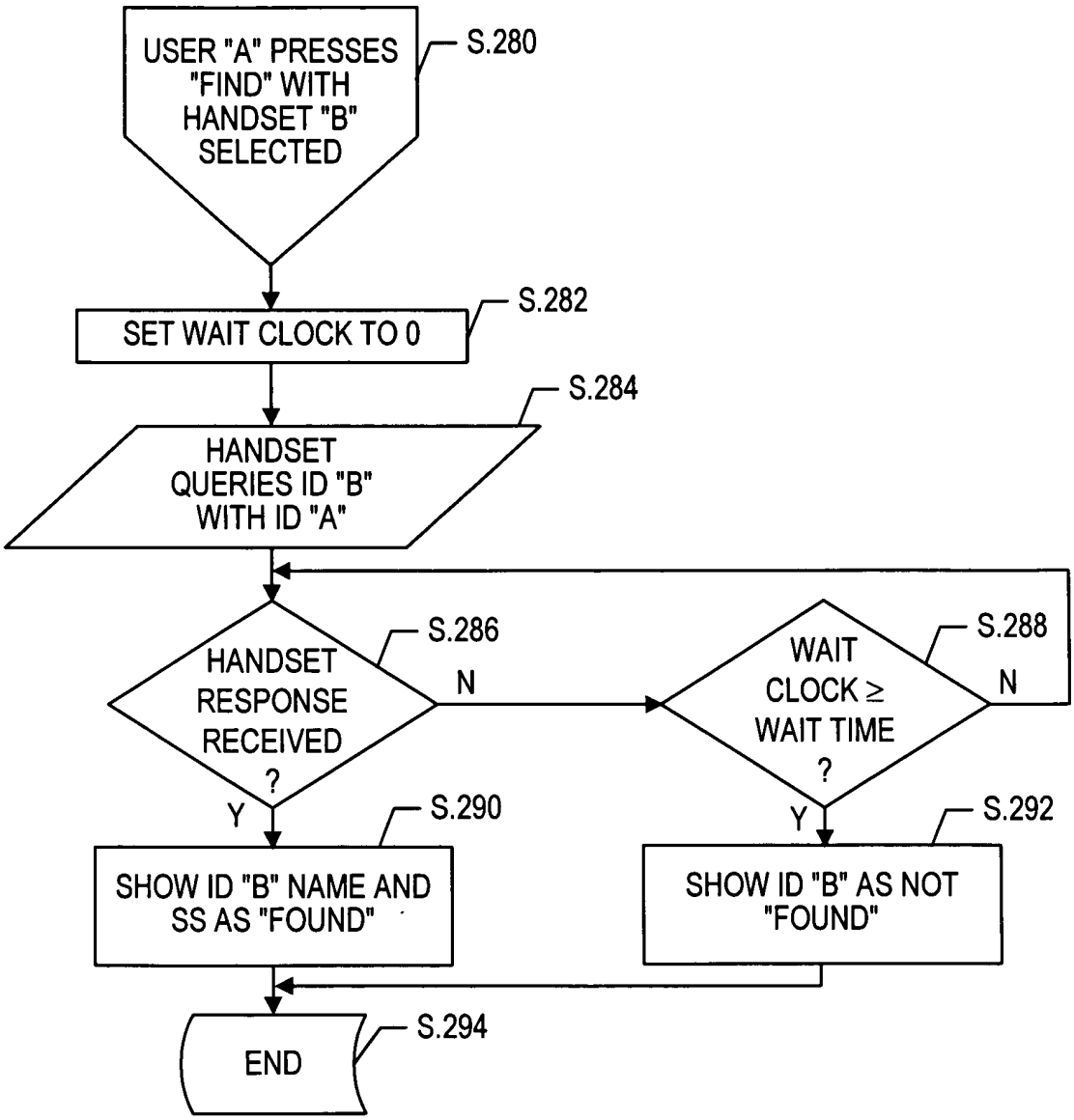

USER "A" PRESSES "FIND" WITH HANDSET "B" SELECTED
S.280
SET WAIT CLOCK TO 0
S.282
HANDSET QUERIES ID "B" WITH ID "A"
S.284
HANDSET RESPONSE RECEIVED ?
S.286
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.288
N
Y
SHOW ID "B" NAME AND SS AS "FOUND"
S.290
SHOW ID "B" AS NOT "FOUND"
S.292
END
S.294

FIG. 13A

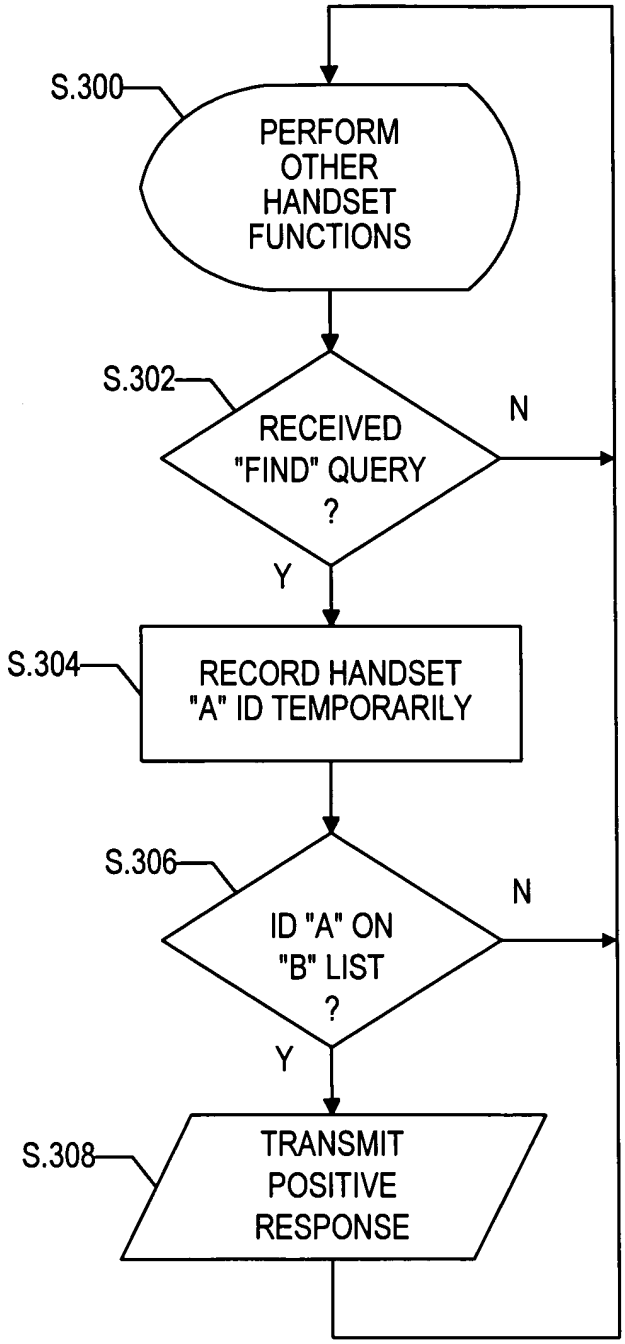

S.300
PERFORM OTHER HANDSET FUNCTIONS
S.302
RECEIVED "FIND" QUERY ?
N
Y
S.304
RECORD HANDSET "A" ID TEMPORARILY
S.306
ID "A" ON "B" LIST ?
N
Y
S.308
TRANSMIT POSITIVE RESPONSE

FIG. 13B

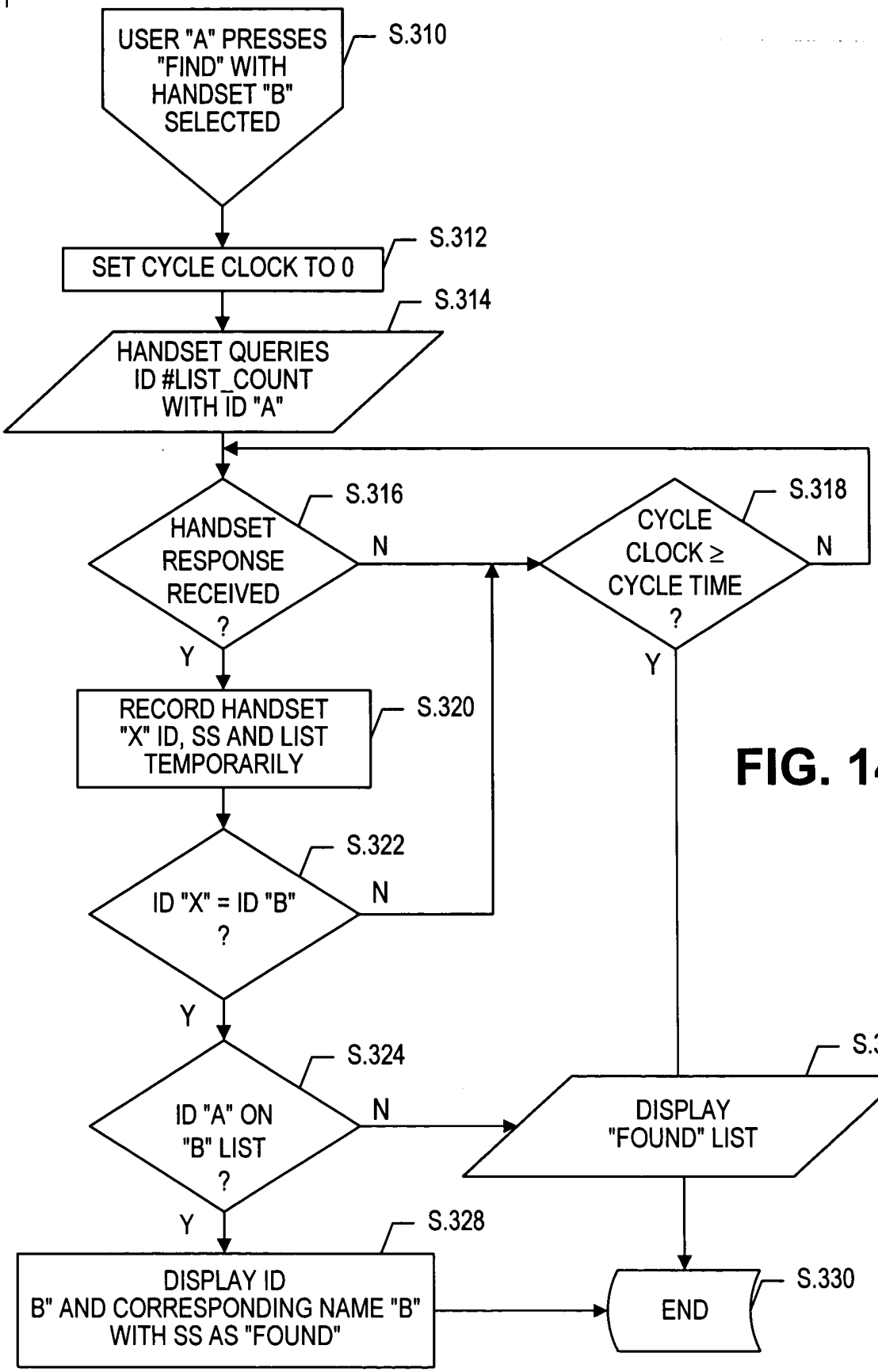

USER "A" PRESSES "FIND" WITH HANDSET "B" SELECTED
S.310
SET CYCLE CLOCK TO 0
S.312
HANDSET QUERIES ID #LIST_COUNT WITH ID "A"
S.314
HANDSET RESPONSE RECEIVED ?
S.316
N
Y
CYCLE CLOCK ≥ CYCLE TIME ?
S.318
N
Y
RECORD HANDSET "X" ID, SS AND LIST TEMPORARILY
S.320
ID "X" = ID "B" ?
S.322
N
Y
ID "A" ON "B" LIST ?
S.324
N
Y
DISPLAY "FOUND" LIST
S.326
DISPLAY ID B" AND CORRESPONDING NAME "B" WITH SS AS "FOUND"
S.328
END
S.330

FIG. 14A

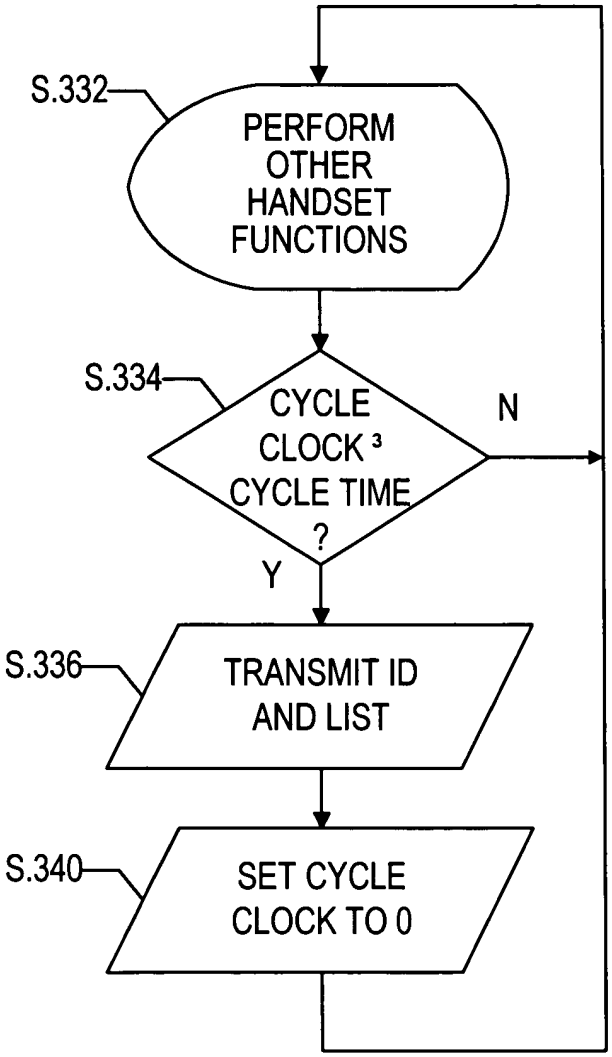

S.332
PERFORM OTHER HANDSET FUNCTIONS
S.334
CYCLE CLOCK 3 CYCLE TIME ?
N
Y
S.336
TRANSMIT ID AND LIST
S.340
SET CYCLE CLOCK TO 0

FIG. 14B

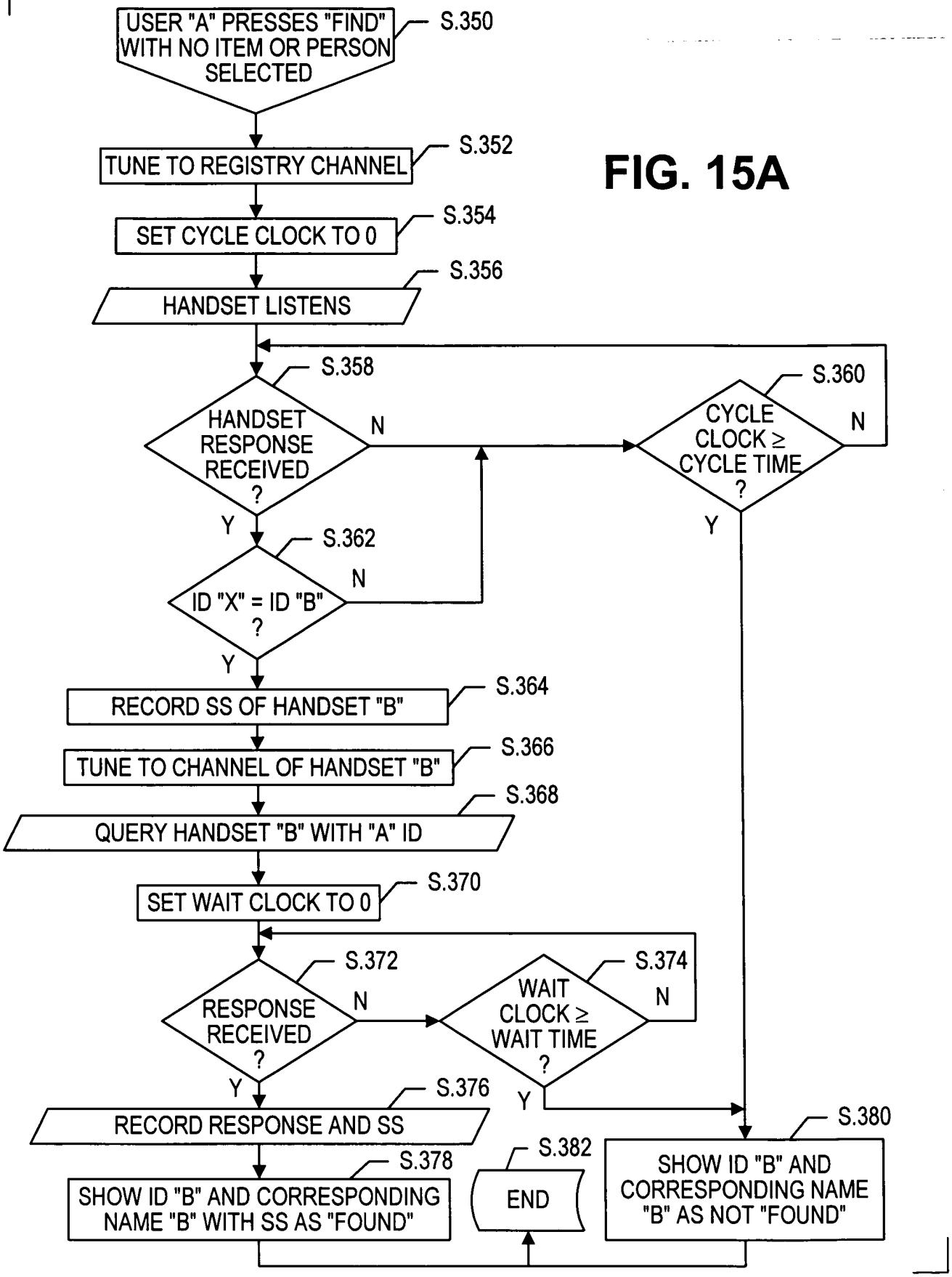
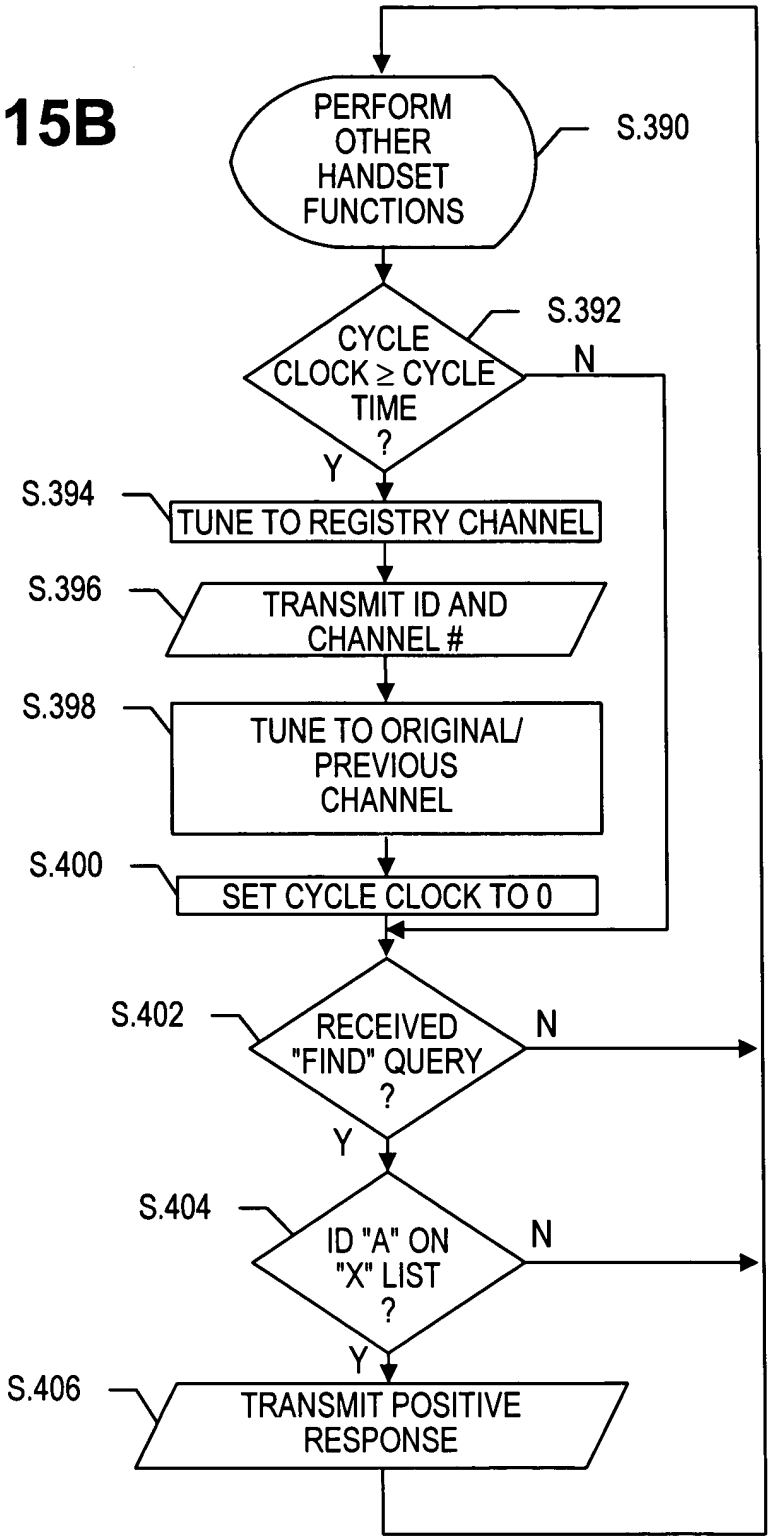

USER "A" PRESSES "FIND" WITH NO ITEM OR PERSON SELECTED
S.350
TUNE TO REGISTRY CHANNEL
S.352
SET CYCLE CLOCK TO 0
S.354
HANDSET LISTENS
S.356
HANDSET RESPONSE RECEIVED ?
S.358
N
Y
CYCLE CLOCK ≥ CYCLE TIME ?
S.360
N
Y
ID "X" = ID "B" ?
S.362
N
Y
RECORD SS OF HANDSET "B"
S.364
TUNE TO CHANNEL OF HANDSET "B"
S.366
QUERY HANDSET "B" WITH "A" ID
S.368
SET WAIT CLOCK TO 0
S.370
RESPONSE RECEIVED ?
S.372
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.374
N
Y
RECORD RESPONSE AND SS
S.376
SHOW ID "B" AND CORRESPONDING NAME "B" WITH SS AS "FOUND"
S.378
END
S.382
SHOW ID "B" AND CORRESPONDING NAME "B" AS NOT "FOUND"
S.380

FIG. 15A

FIG. 15B


PERFORM OTHER HANDSET FUNCTIONS
S.390
CYCLE CLOCK ≥ CYCLE TIME ?
S.392
N
Y
S.394
TUNE TO REGISTRY CHANNEL
S.396
TRANSMIT ID AND CHANNEL #
S.398
TUNE TO ORIGINAL/ PREVIOUS CHANNEL
S.400
SET CYCLE CLOCK TO 0
S.402
RECEIVED "FIND" QUERY ?
N
Y
S.404
ID "A" ON "X" LIST ?
N
Y
S.406
TRANSMIT POSITIVE RESPONSE

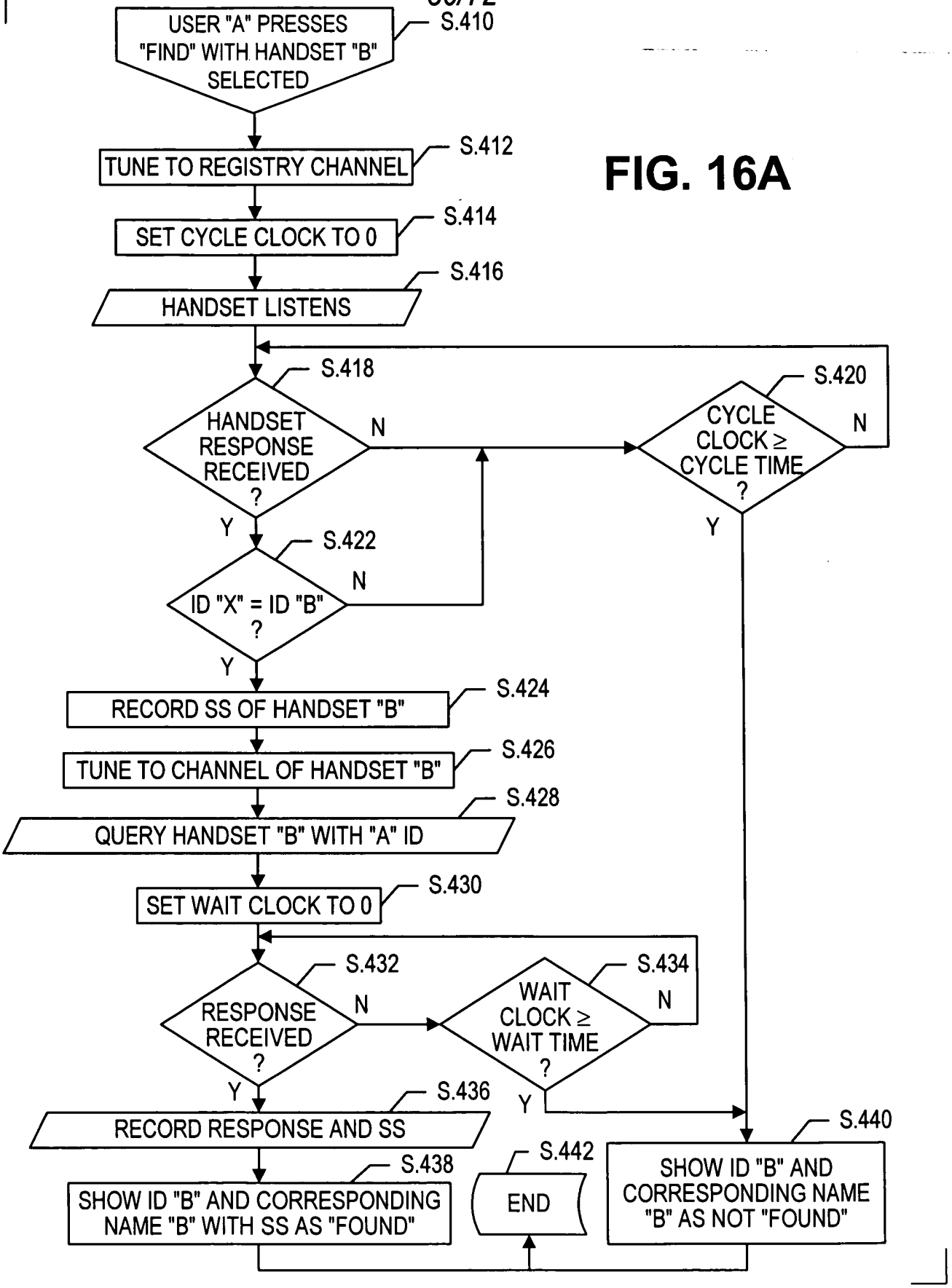
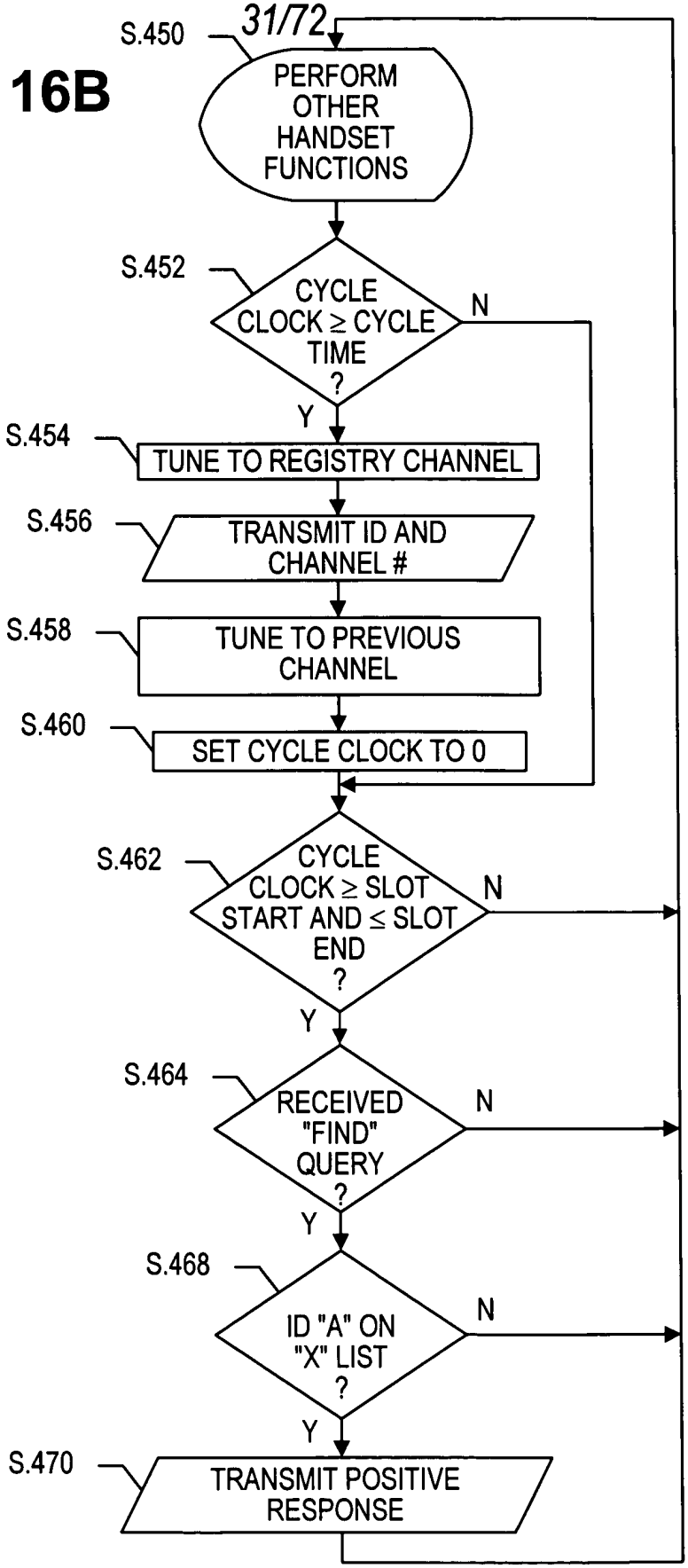

USER "A" PRESSES "FIND" WITH HANDSET "B" SELECTED
S.410
TUNE TO REGISTRY CHANNEL
S.412
SET CYCLE CLOCK TO 0
S.414
HANDSET LISTENS
S.416
S.418
HANDSET RESPONSE RECEIVED ?
N
Y
S.420
CYCLE CLOCK ≥ CYCLE TIME ?
N
Y
S.422
ID "X" = ID "B" ?
N
Y
RECORD SS OF HANDSET "B"
S.424
TUNE TO CHANNEL OF HANDSET "B"
S.426
QUERY HANDSET "B" WITH "A" ID
S.428
SET WAIT CLOCK TO 0
S.430
S.432
RESPONSE RECEIVED ?
N
Y
S.434
WAIT CLOCK ≥ WAIT TIME ?
N
Y
RECORD RESPONSE AND SS
S.436
SHOW ID "B" AND CORRESPONDING NAME "B" WITH SS AS "FOUND"
S.438
END
S.442
SHOW ID "B" AND CORRESPONDING NAME "B" AS NOT "FOUND"
S.440

FIG. 16A

FIG. 16B


S.450
PERFORM OTHER HANDSET FUNCTIONS
S.452
CYCLE CLOCK ≥ CYCLE TIME ?
N
Y
S.454
TUNE TO REGISTRY CHANNEL
S.456
TRANSMIT ID AND CHANNEL #
S.458
TUNE TO PREVIOUS CHANNEL
S.460
SET CYCLE CLOCK TO 0
S.462
CYCLE CLOCK ≥ SLOT START AND ≤ SLOT END ?
N
Y
S.464
RECEIVED "FIND" QUERY ?
N
Y
S.468
ID "A" ON "X" LIST ?
N
Y
S.470
TRANSMIT POSITIVE RESPONSE

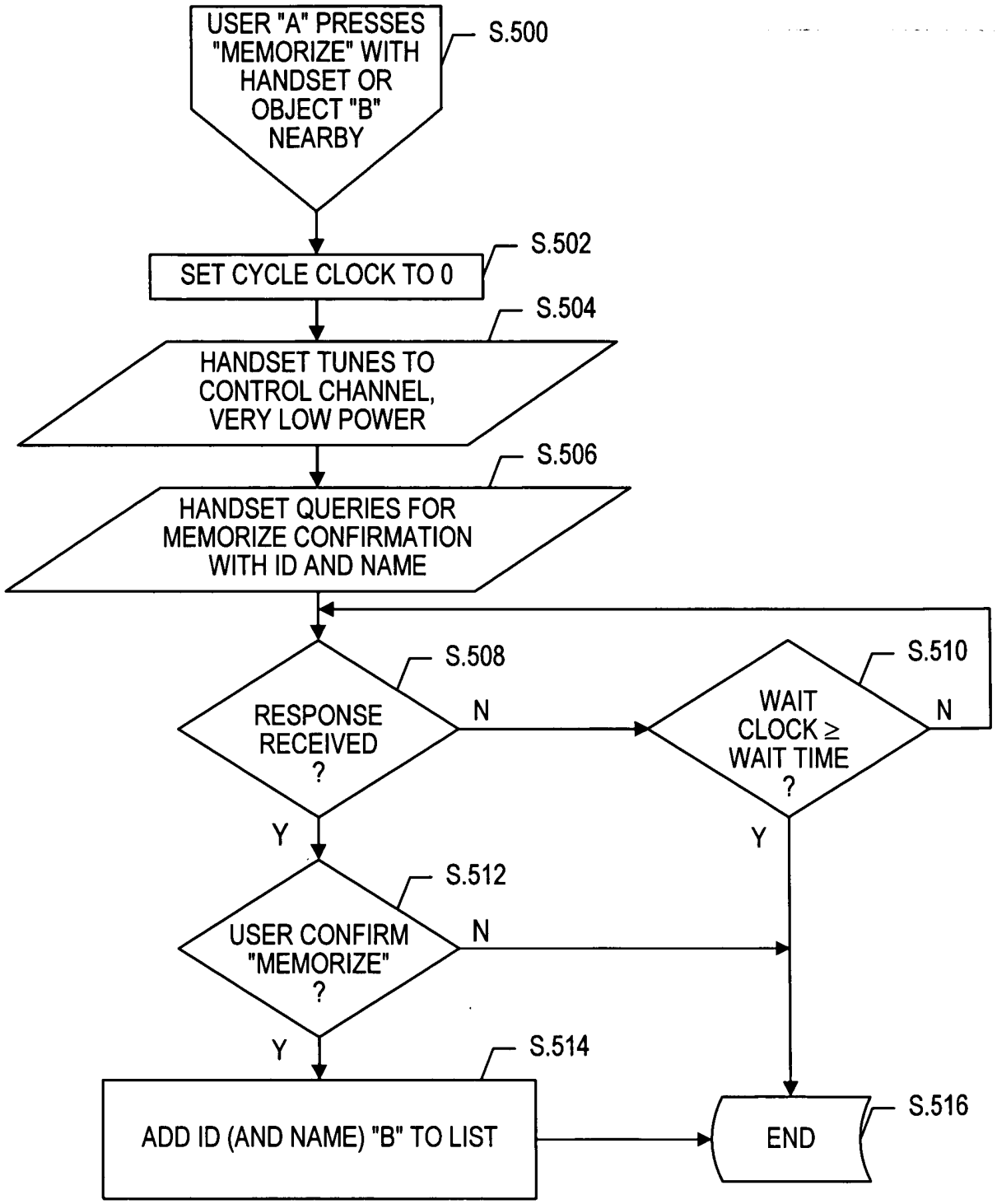

USER "A" PRESSES "MEMORIZE" WITH HANDSET OR OBJECT "B" NEARBY
S.500
SET CYCLE CLOCK TO 0
S.502
HANDSET TUNES TO CONTROL CHANNEL, VERY LOW POWER
S.504
HANDSET QUERIES FOR MEMORIZE CONFIRMATION WITH ID AND NAME
S.506
RESPONSE RECEIVED ?
S.508
N
WAIT CLOCK ≥ WAIT TIME ?
S.510
N
Y
Y
USER CONFIRM "MEMORIZE" ?
S.512
N
Y
ADD ID (AND NAME) "B" TO LIST
S.514
END
S.516

FIG. 17A

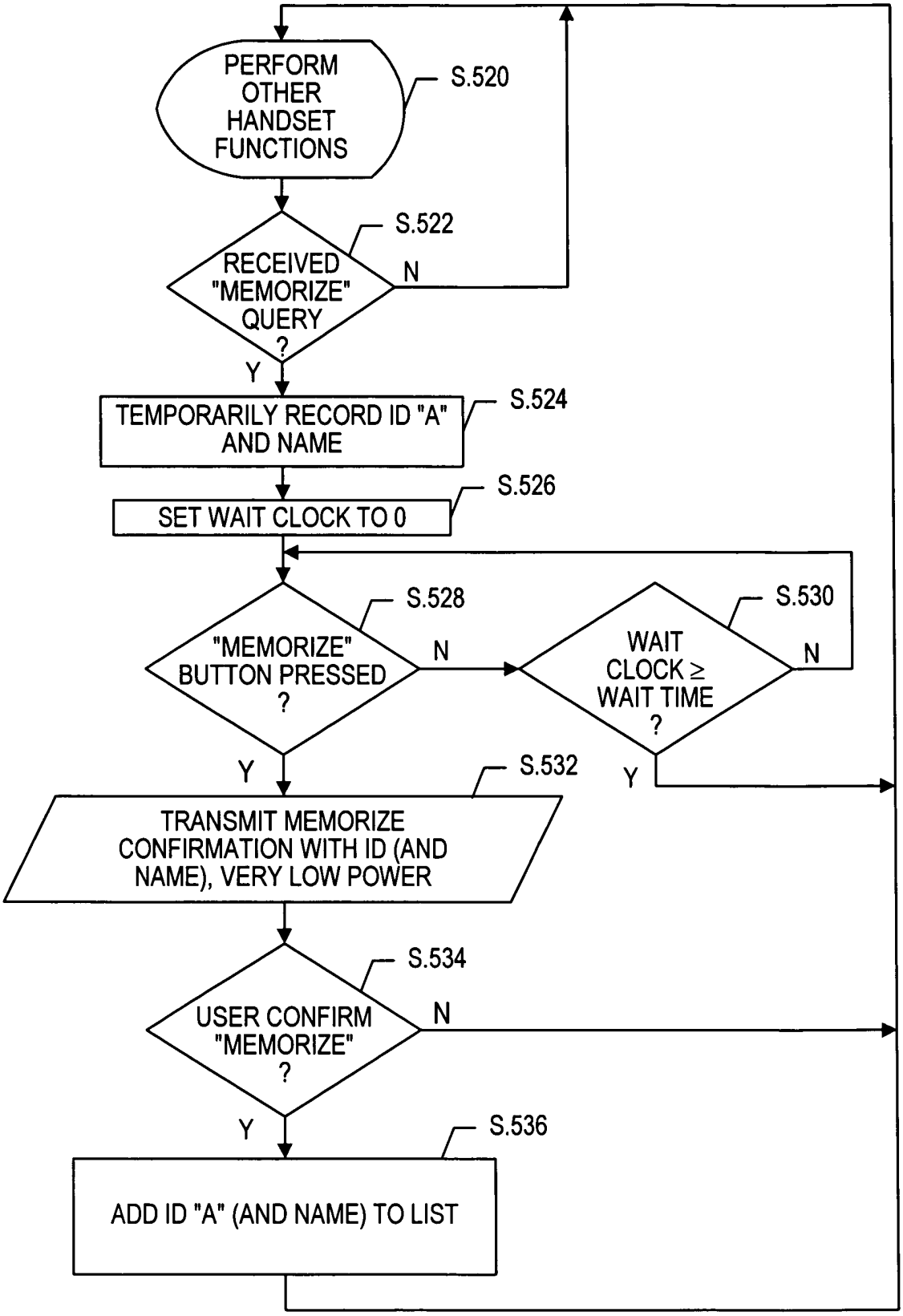

PERFORM OTHER HANDSET FUNCTIONS
S.520
S.522
RECEIVED "MEMORIZE" QUERY ?
N
Y
TEMPORARILY RECORD ID "A" AND NAME
S.524
SET WAIT CLOCK TO 0
S.526
S.528
"MEMORIZE" BUTTON PRESSED ?
N
S.530
WAIT CLOCK ≥ WAIT TIME ?
N
Y
Y
S.532
TRANSMIT MEMORIZE CONFIRMATION WITH ID (AND NAME), VERY LOW POWER
S.534
USER CONFIRM "MEMORIZE" ?
N
Y
S.536
ADD ID "A" (AND NAME) TO LIST

FIG. 17B

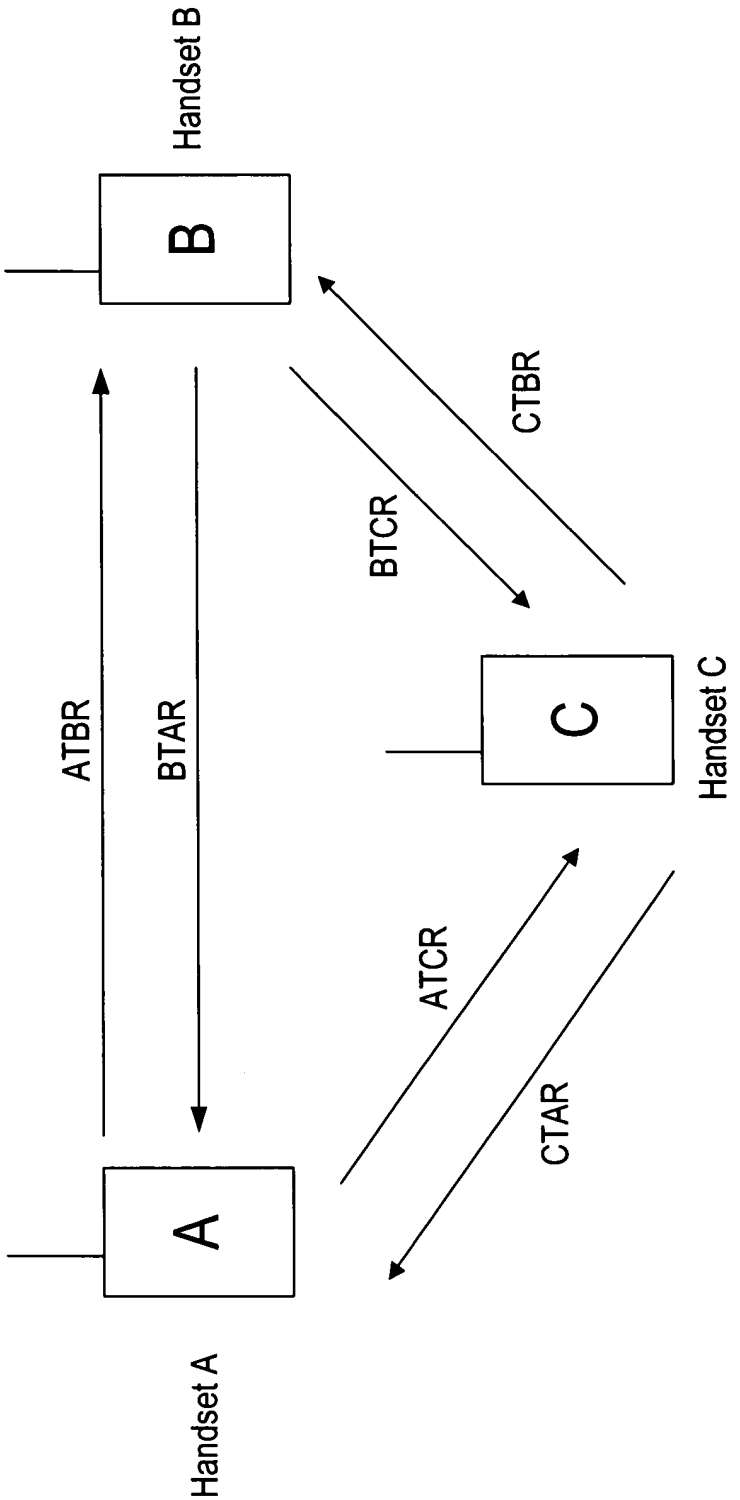

Handset B
B
CTBR
BTCR
ATBR
BTAR
C
Handset C
ATCR
CTAR
A
Handset A

FIG. 18A

	TS1	TS2	TS3
HANDSET A			
Transmit	C	ATBR	ATCR
Receive	C	CTAR	BTAR
HANDSET B			
Transmit	C	BTCR	BTAR
Receive	C	ATBR	CTBR
HANDSET C			
Transmit	C	CTAR	CTBR
Receive	C	BTCR	ATCR

FIG. 18B

	TS1	TS2	TS3
HANDSET A Transmit	C	ATBR	ATCR
Receive	CTAR	BTAR	C
HANDSET B Transmit	BTCR	BTAR	C
Receive	C	ATBR	CTBR
HANDSET C Transmit	CTAR	C	CTBR
Receive	BTCR	C	ATCR

FIG. 18C

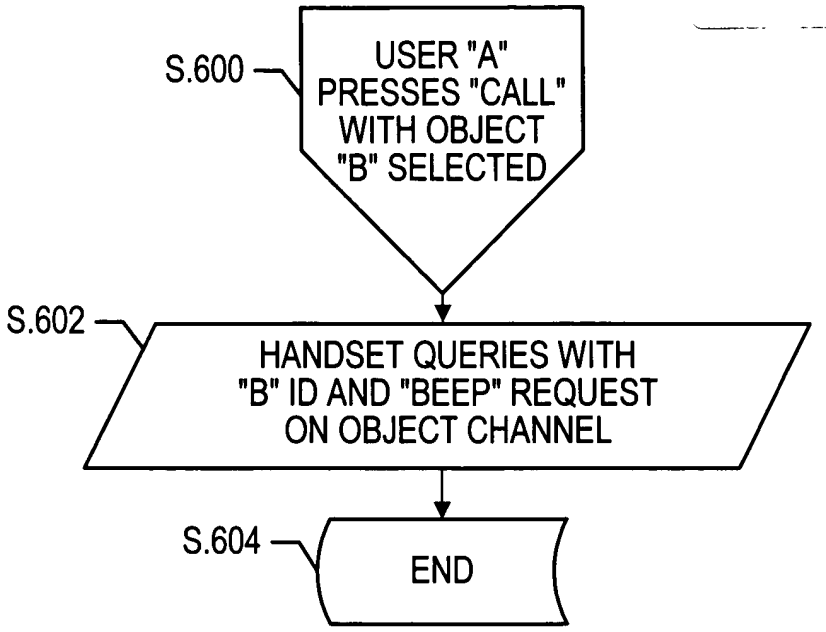


FIG. 19A

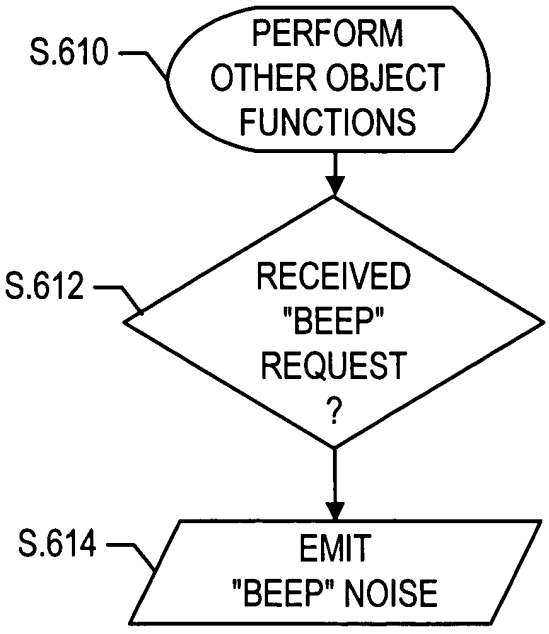


FIG. 19B

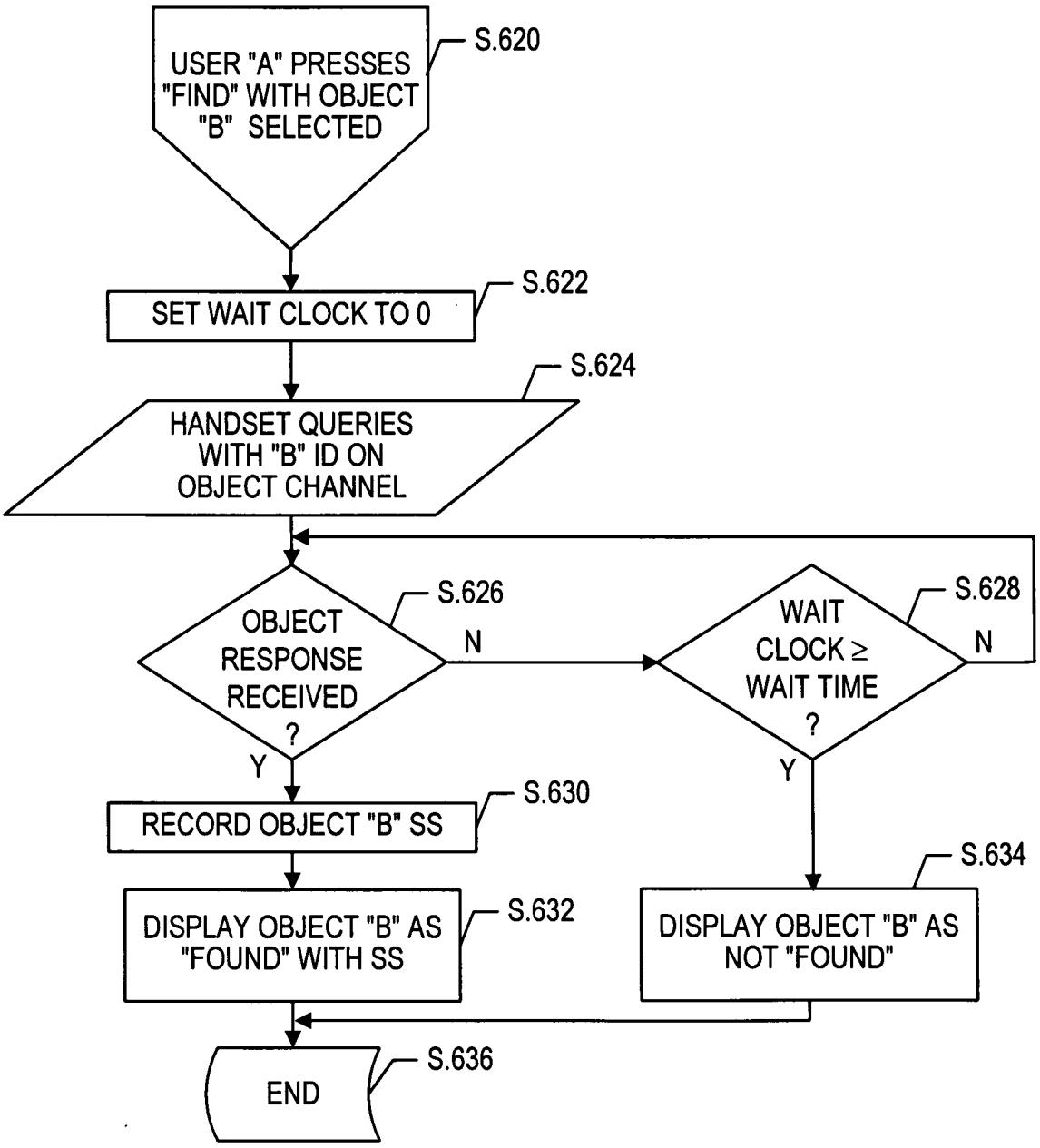

USER "A" PRESSES "FIND" WITH OBJECT "B" SELECTED
S.620
SET WAIT CLOCK TO 0
S.622
HANDSET QUERIES WITH "B" ID ON OBJECT CHANNEL
S.624
OBJECT RESPONSE RECEIVED ?
S.626
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.628
N
Y
RECORD OBJECT "B" SS
S.630
DISPLAY OBJECT "B" AS "FOUND" WITH SS
S.632
DISPLAY OBJECT "B" AS NOT "FOUND"
S.634
END
S.636

FIG. 20A

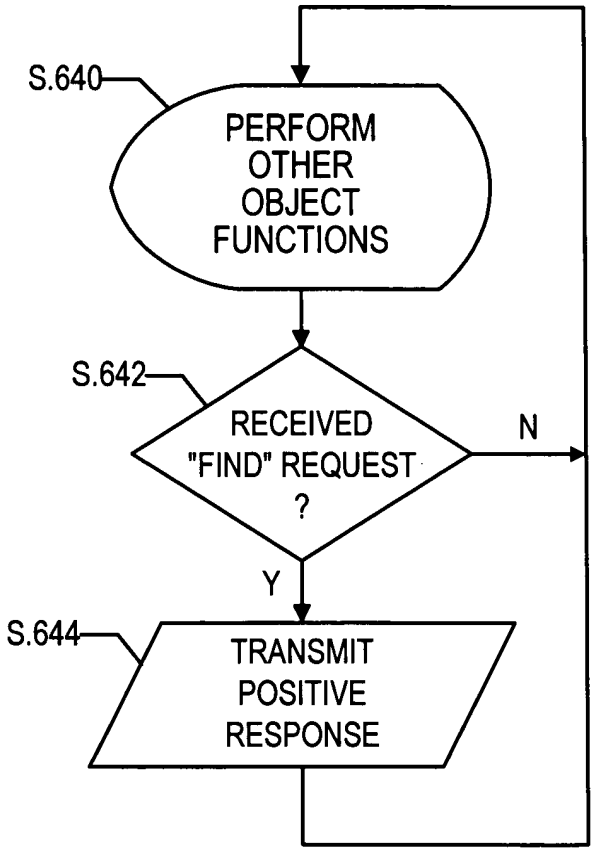

S.640
PERFORM OTHER OBJECT FUNCTIONS
S.642
RECEIVED "FIND" REQUEST ?
N
Y
S.644
TRANSMIT POSITIVE RESPONSE

FIG. 20B

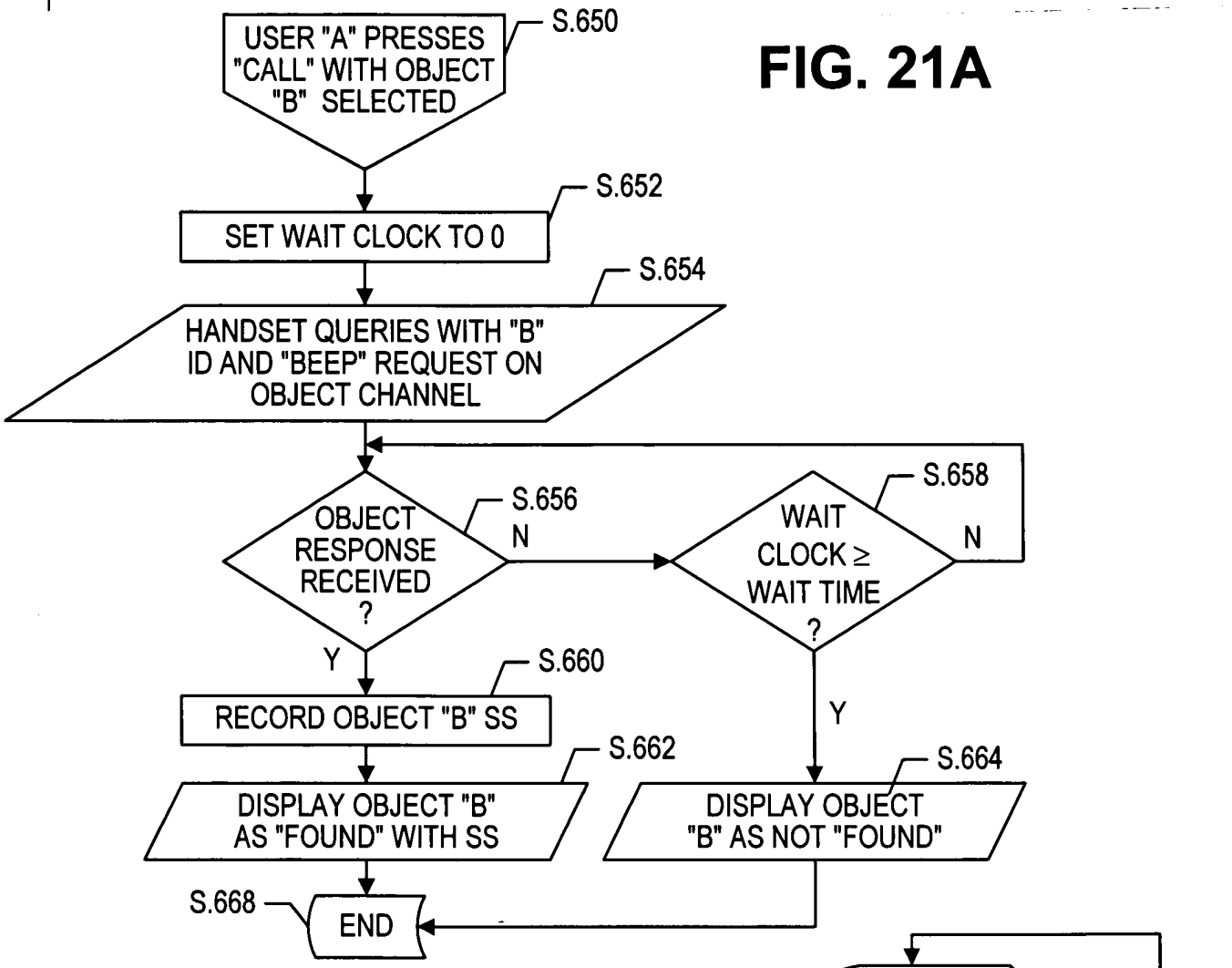


FIG. 21A

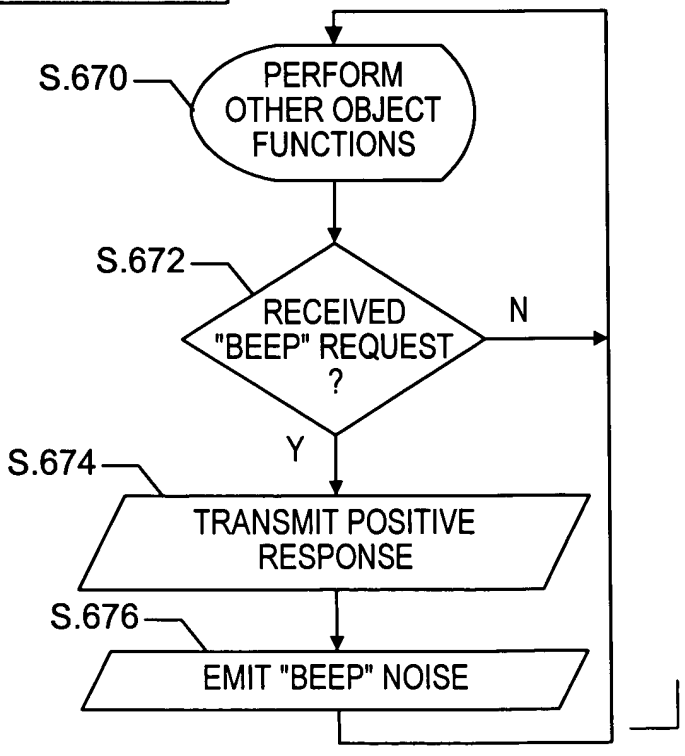
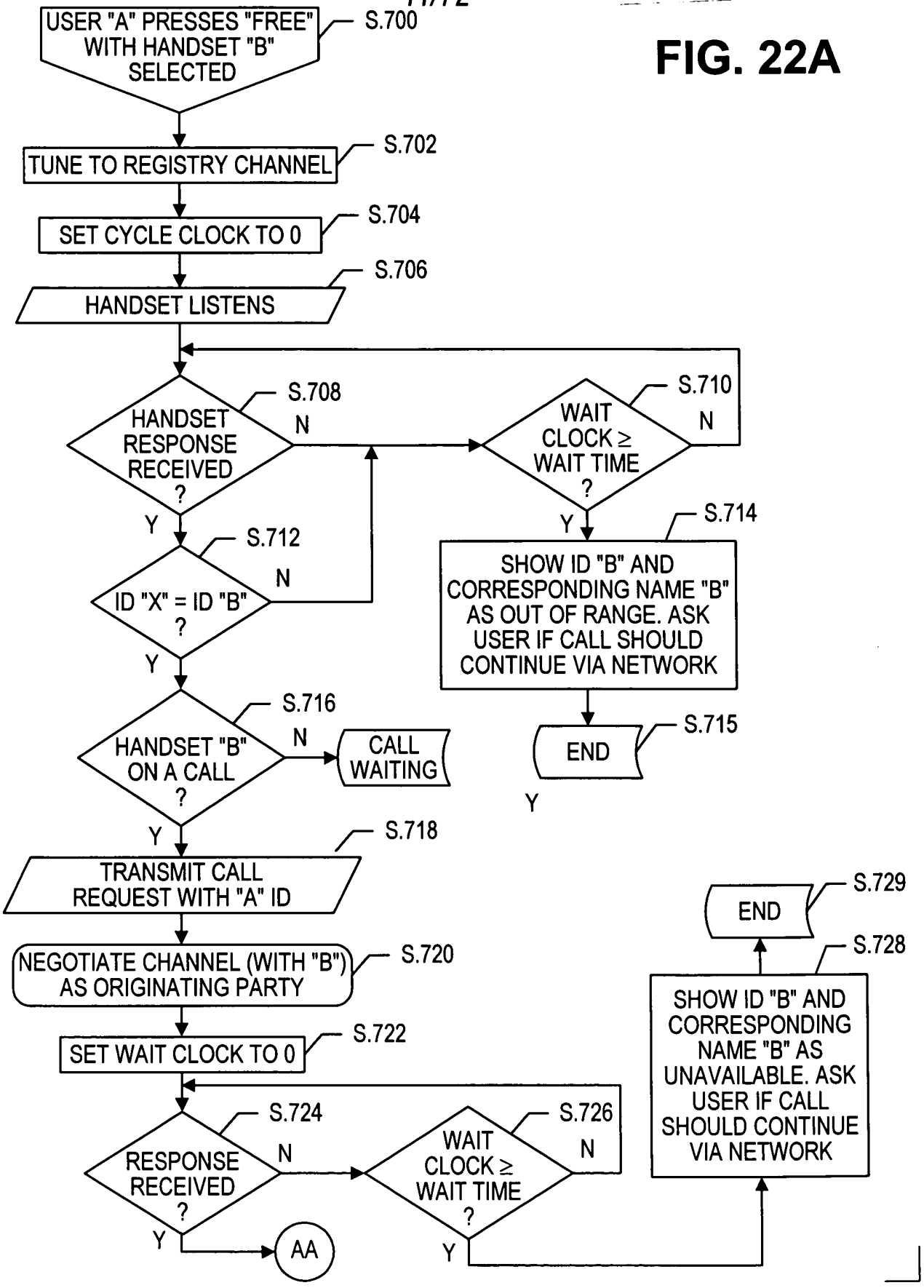


FIG. 21B

FIG. 22A


USER "A" PRESSES "FREE" WITH HANDSET "B" SELECTED
S.700
TUNE TO REGISTRY CHANNEL
S.702
SET CYCLE CLOCK TO 0
S.704
HANDSET LISTENS
S.706
HANDSET RESPONSE RECEIVED ?
S.708
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.710
N
Y
ID "X" = ID "B" ?
S.712
N
Y
SHOW ID "B" AND CORRESPONDING NAME "B" AS OUT OF RANGE. ASK USER IF CALL SHOULD CONTINUE VIA NETWORK
S.714
END
S.715
HANDSET "B" ON A CALL ?
S.716
N
CALL WAITING
Y
TRANSMIT CALL REQUEST WITH "A" ID
S.718
NEGOTIATE CHANNEL (WITH "B") AS ORIGINATING PARTY
S.720
SET WAIT CLOCK TO 0
S.722
RESPONSE RECEIVED ?
S.724
N
Y
AA
WAIT CLOCK ≥ WAIT TIME ?
S.726
N
Y
SHOW ID "B" AND CORRESPONDING NAME "B" AS UNAVAILABLE. ASK USER IF CALL SHOULD CONTINUE VIA NETWORK
S.728
END
S.729

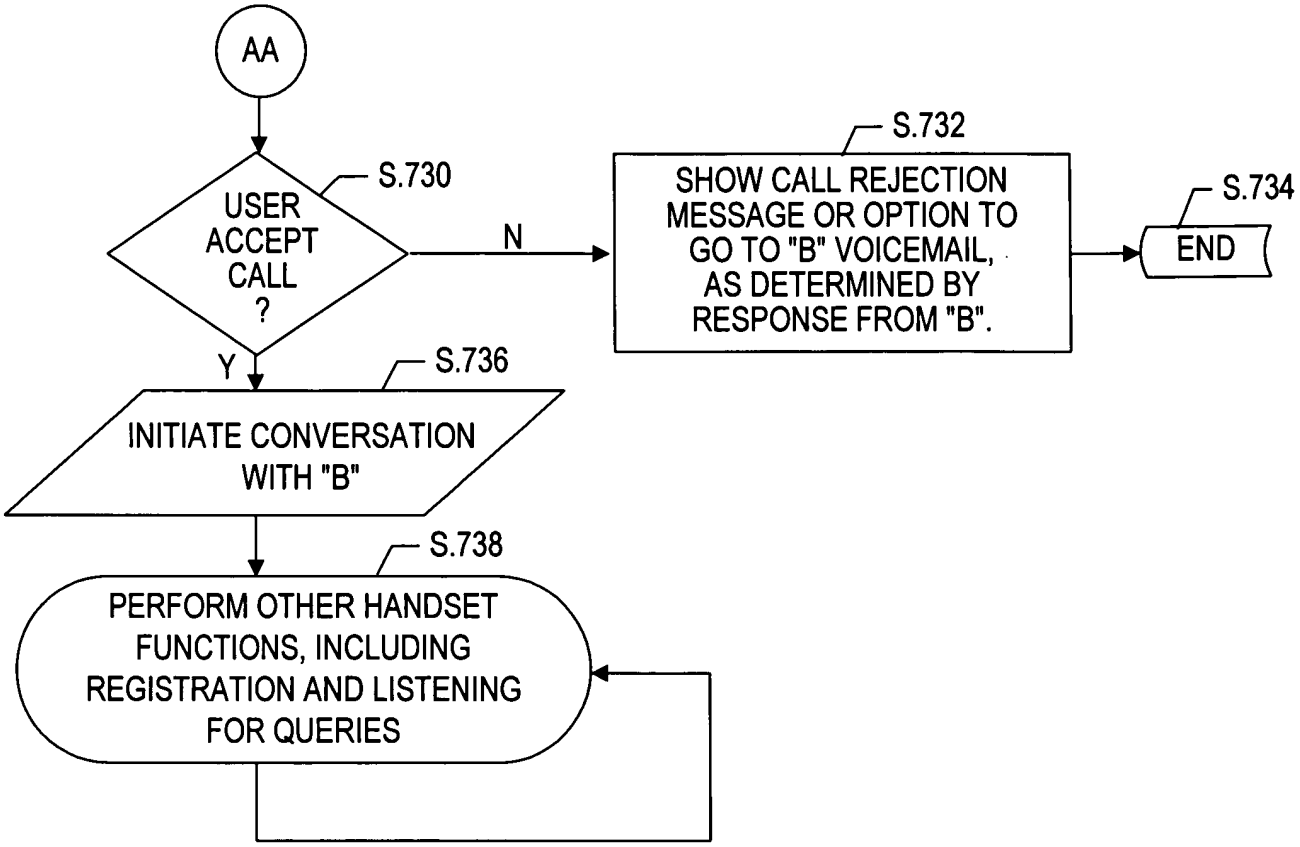

AA
S.730
USER ACCEPT CALL ?
N
S.732
SHOW CALL REJECTION MESSAGE OR OPTION TO GO TO "B" VOICEMAIL, AS DETERMINED BY RESPONSE FROM "B".
S.734
END
Y
S.736
INITIATE CONVERSATION WITH "B"
S.738
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING REGISTRATION AND LISTENING FOR QUERIES

FIG. 22B

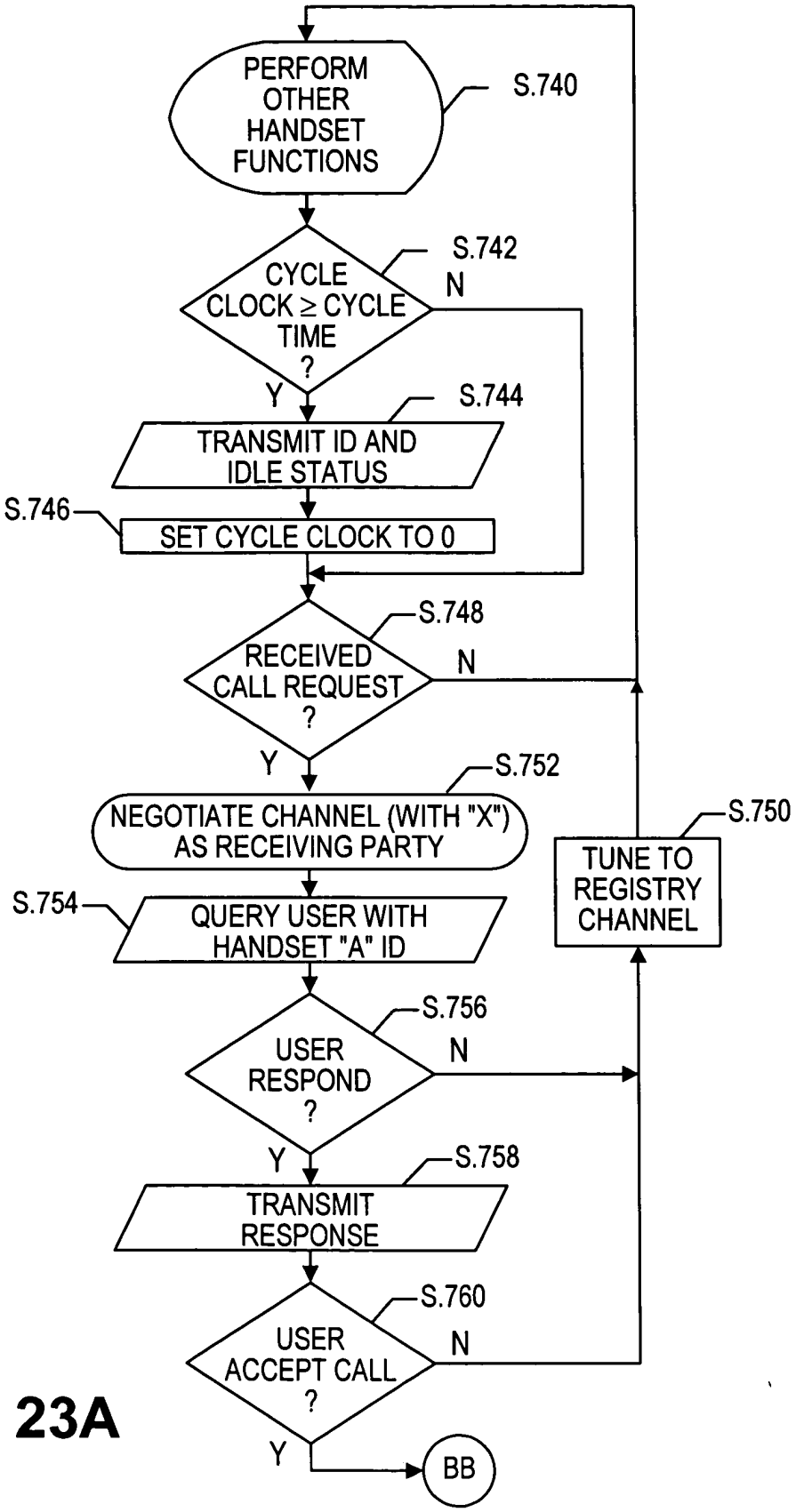

PERFORM OTHER HANDSET FUNCTIONS
S.740
CYCLE CLOCK ≥ CYCLE TIME ?
S.742
N
Y
TRANSMIT ID AND IDLE STATUS
S.744
SET CYCLE CLOCK TO 0
S.746
RECEIVED CALL REQUEST ?
S.748
N
Y
NEGOTIATE CHANNEL (WITH "X") AS RECEIVING PARTY
S.752
QUERY USER WITH HANDSET "A" ID
S.754
USER RESPOND ?
S.756
N
Y
TRANSMIT RESPONSE
S.758
USER ACCEPT CALL ?
S.760
N
Y
BB
TUNE TO REGISTRY CHANNEL
S.750

FIG. 23A

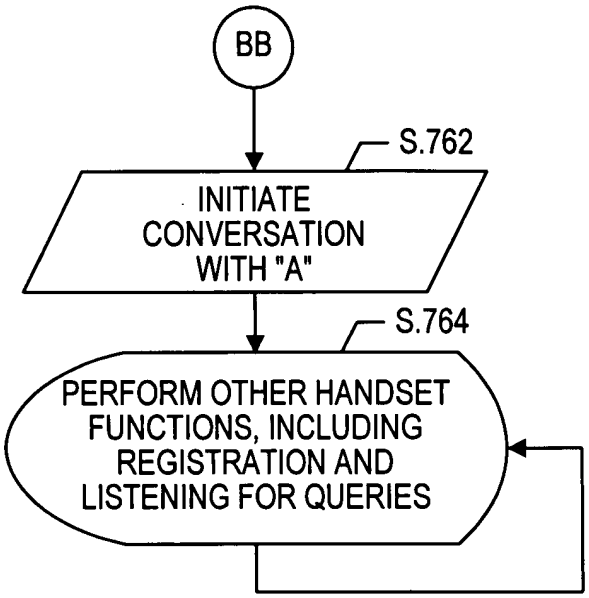
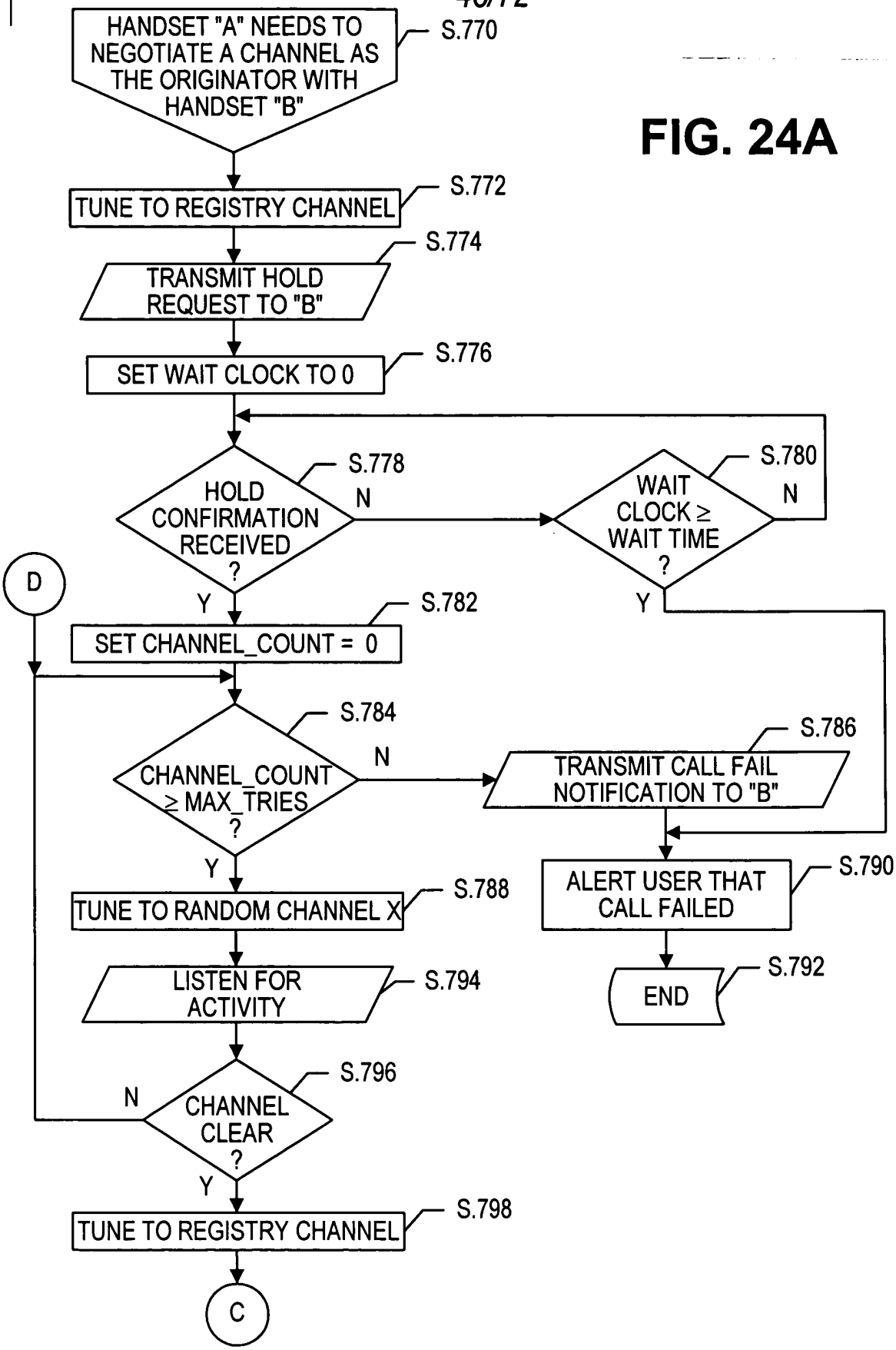

BB
S.762
INITIATE CONVERSATION WITH "A"
S.764
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING REGISTRATION AND LISTENING FOR QUERIES

FIG. 23B

FIG. 24A


HANDSET "A" NEEDS TO NEGOTIATE A CHANNEL AS THE ORIGINATOR WITH HANDSET "B"
S.770
TUNE TO REGISTRY CHANNEL
S.772
TRANSMIT HOLD REQUEST TO "B"
S.774
SET WAIT CLOCK TO 0
S.776
HOLD CONFIRMATION RECEIVED ?
S.778
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.780
N
Y
D
SET CHANNEL_COUNT = 0
S.782
CHANNEL_COUNT ≥ MAX_TRIES ?
S.784
N
Y
TRANSMIT CALL FAIL NOTIFICATION TO "B"
S.786
ALERT USER THAT CALL FAILED
S.790
END
S.792
TUNE TO RANDOM CHANNEL X
S.788
LISTEN FOR ACTIVITY
S.794
CHANNEL CLEAR ?
S.796
N
Y
TUNE TO REGISTRY CHANNEL
S.798
C

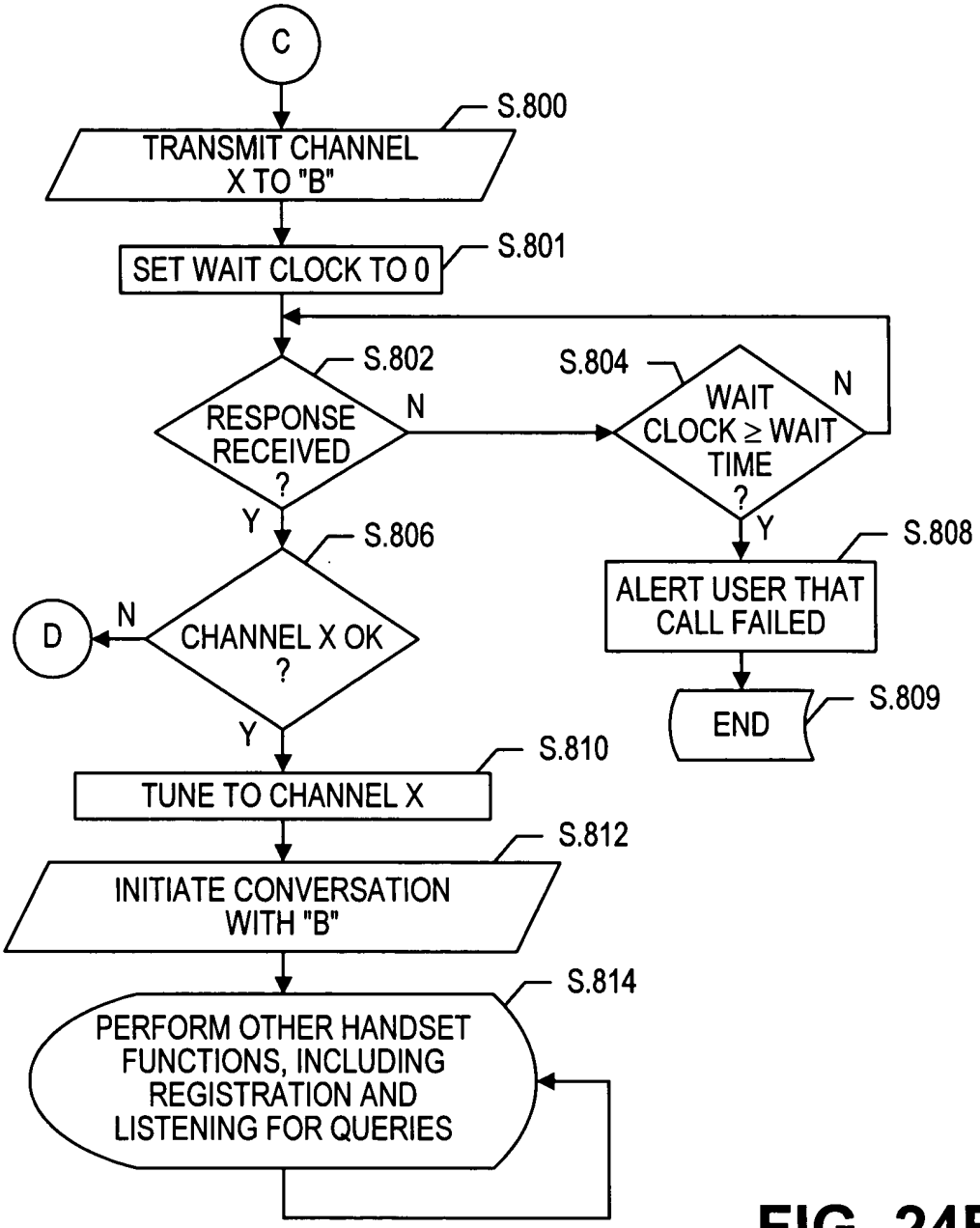

C
S.800
TRANSMIT CHANNEL X TO "B"
S.801
SET WAIT CLOCK TO 0
S.802
RESPONSE RECEIVED ?
N
S.804
WAIT CLOCK ≥ WAIT TIME ?
N
Y
S.806
D
N
CHANNEL X OK ?
Y
S.808
ALERT USER THAT CALL FAILED
S.809
END
S.810
TUNE TO CHANNEL X
S.812
INITIATE CONVERSATION WITH "B"
S.814
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING REGISTRATION AND LISTENING FOR QUERIES

FIG. 24B

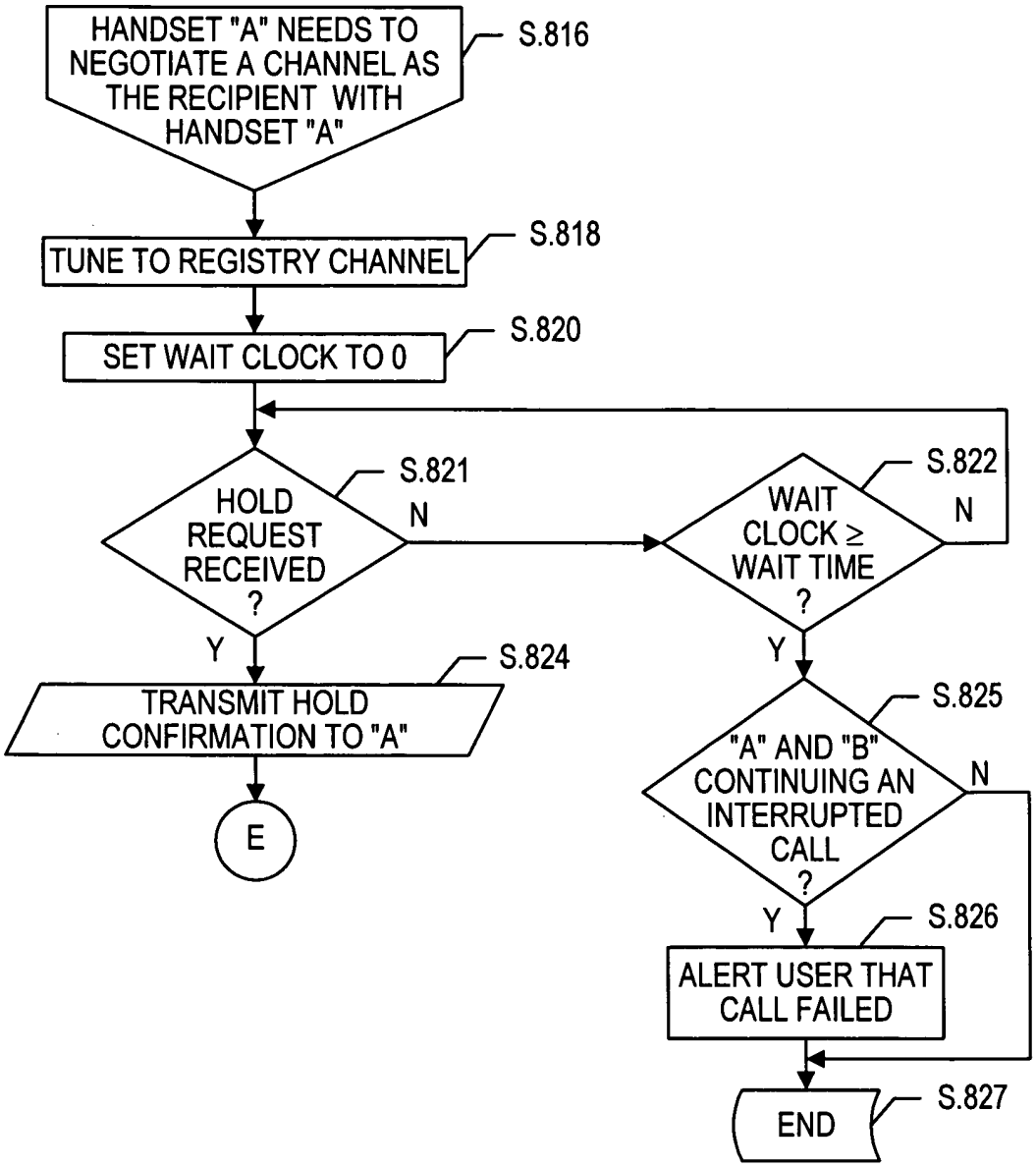

HANDSET "A" NEEDS TO NEGOTIATE A CHANNEL AS THE RECIPIENT WITH HANDSET "A"
S.816
TUNE TO REGISTRY CHANNEL
S.818
SET WAIT CLOCK TO 0
S.820
HOLD REQUEST RECEIVED ?
S.821
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.822
N
Y
TRANSMIT HOLD CONFIRMATION TO "A"
S.824
E
"A" AND "B" CONTINUING AN INTERRUPTED CALL ?
S.825
N
Y
ALERT USER THAT CALL FAILED
S.826
END
S.827

FIG. 25A

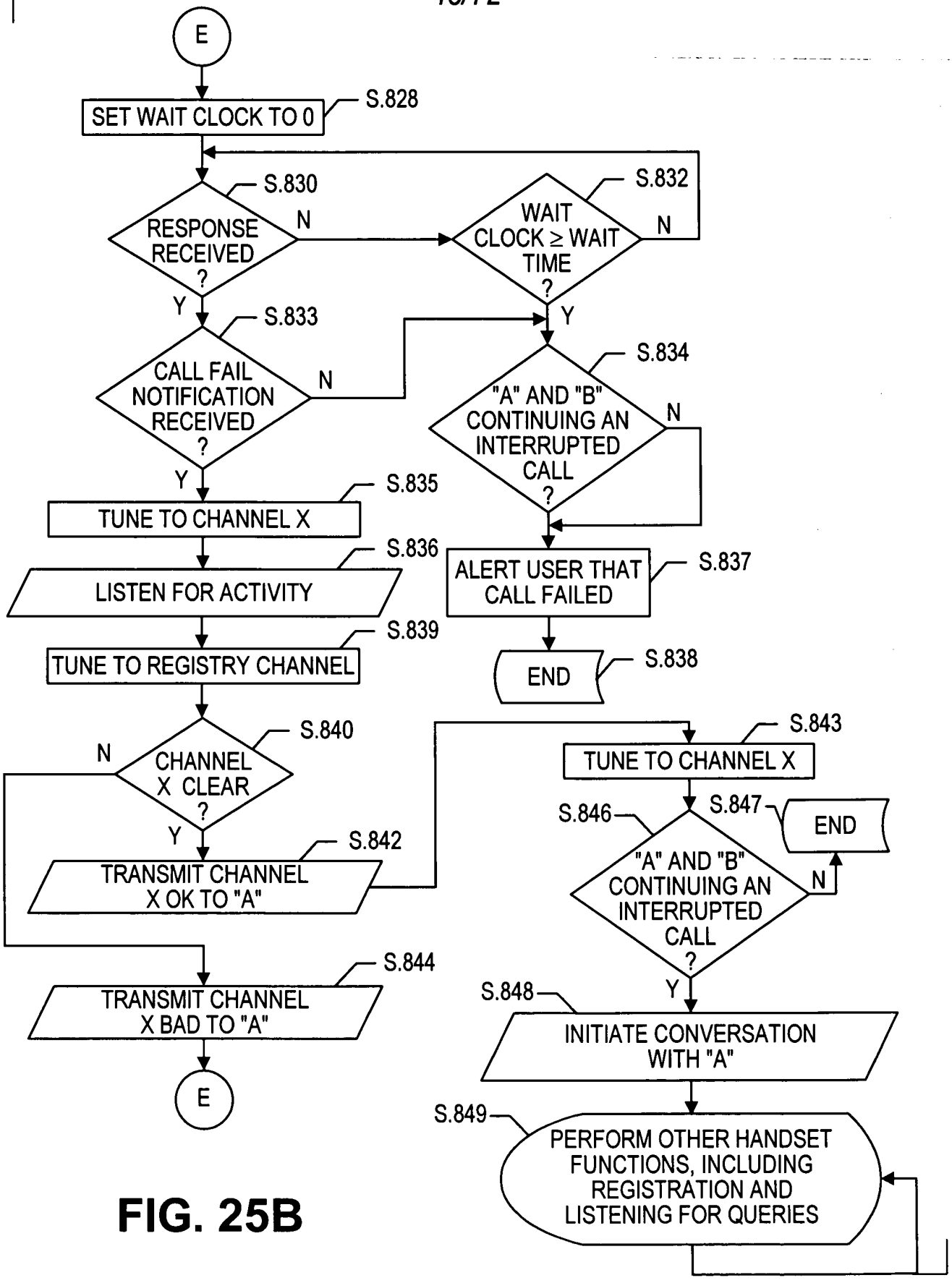
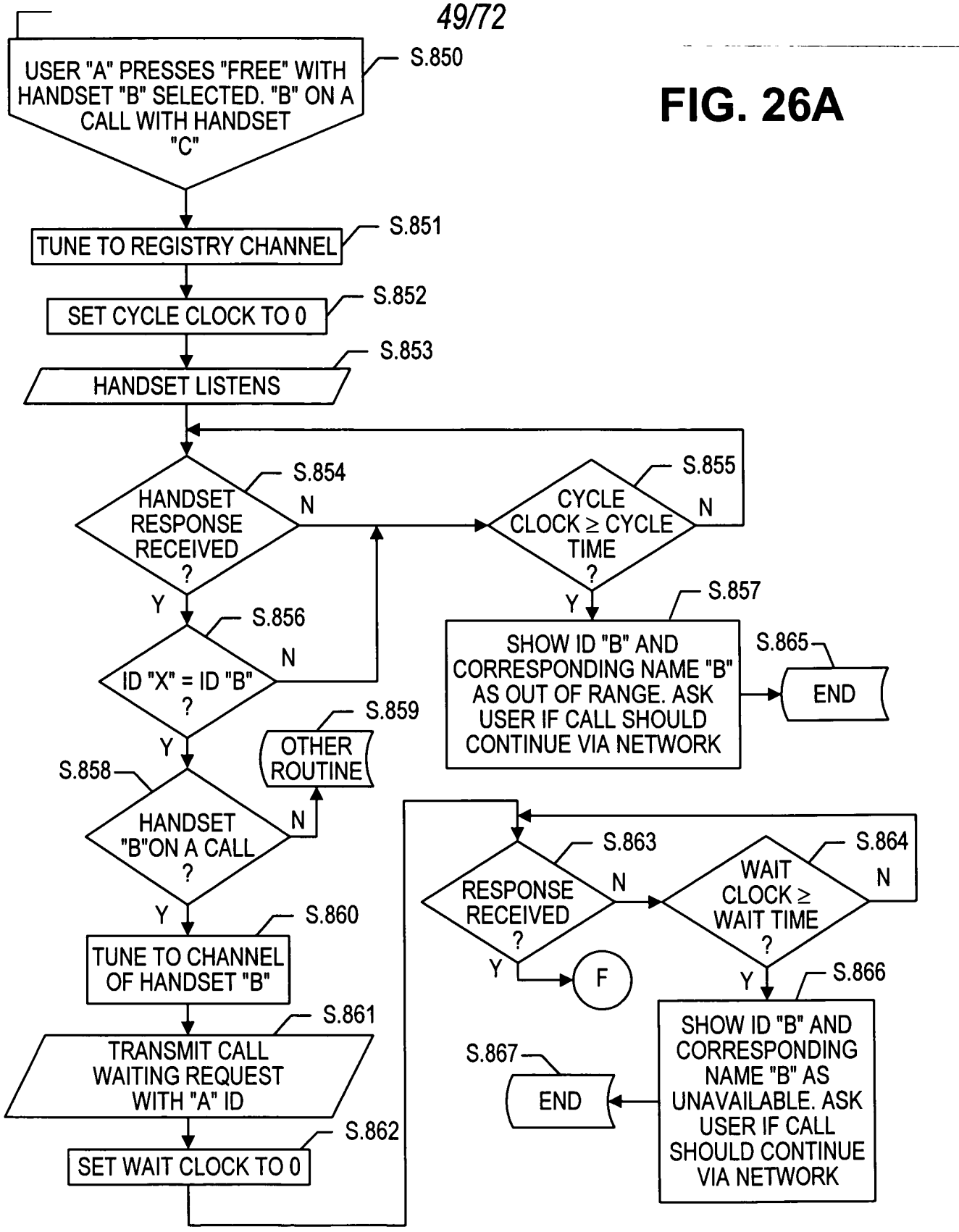

E
SET WAIT CLOCK TO 0
S.828
S.830
RESPONSE RECEIVED ?
N
Y
S.832
WAIT CLOCK ≥ WAIT TIME ?
N
Y
S.833
CALL FAIL NOTIFICATION RECEIVED ?
N
Y
S.834
"A" AND "B" CONTINUING AN INTERRUPTED CALL ?
N
S.835
TUNE TO CHANNEL X
S.836
LISTEN FOR ACTIVITY
S.837
ALERT USER THAT CALL FAILED
S.839
TUNE TO REGISTRY CHANNEL
S.838
END
S.840
CHANNEL X CLEAR ?
N
Y
S.842
TRANSMIT CHANNEL X OK TO "A"
S.843
TUNE TO CHANNEL X
S.846
S.847
END
"A" AND "B" CONTINUING AN INTERRUPTED CALL ?
N
Y
S.844
TRANSMIT CHANNEL X BAD TO "A"
S.848
INITIATE CONVERSATION WITH "A"
S.849
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING REGISTRATION AND LISTENING FOR QUERIES
E

FIG. 25B

FIG. 26A


USER "A" PRESSES "FREE" WITH HANDSET "B" SELECTED. "B" ON A CALL WITH HANDSET "C"
S.850
TUNE TO REGISTRY CHANNEL
S.851
SET CYCLE CLOCK TO 0
S.852
HANDSET LISTENS
S.853
HANDSET RESPONSE RECEIVED ?
S.854
N
Y
CYCLE CLOCK ≥ CYCLE TIME ?
S.855
N
Y
ID "X" = ID "B" ?
S.856
N
Y
SHOW ID "B" AND CORRESPONDING NAME "B" AS OUT OF RANGE. ASK USER IF CALL SHOULD CONTINUE VIA NETWORK
S.857
S.865
END
OTHER ROUTINE
S.859
HANDSET "B"ON A CALL ?
S.858
N
Y
TUNE TO CHANNEL OF HANDSET "B"
S.860
TRANSMIT CALL WAITING REQUEST WITH "A" ID
S.861
SET WAIT CLOCK TO 0
S.862
RESPONSE RECEIVED ?
S.863
N
Y
F
WAIT CLOCK ≥ WAIT TIME ?
S.864
N
Y
SHOW ID "B" AND CORRESPONDING NAME "B" AS UNAVAILABLE. ASK USER IF CALL SHOULD CONTINUE VIA NETWORK
S.866
END
S.867

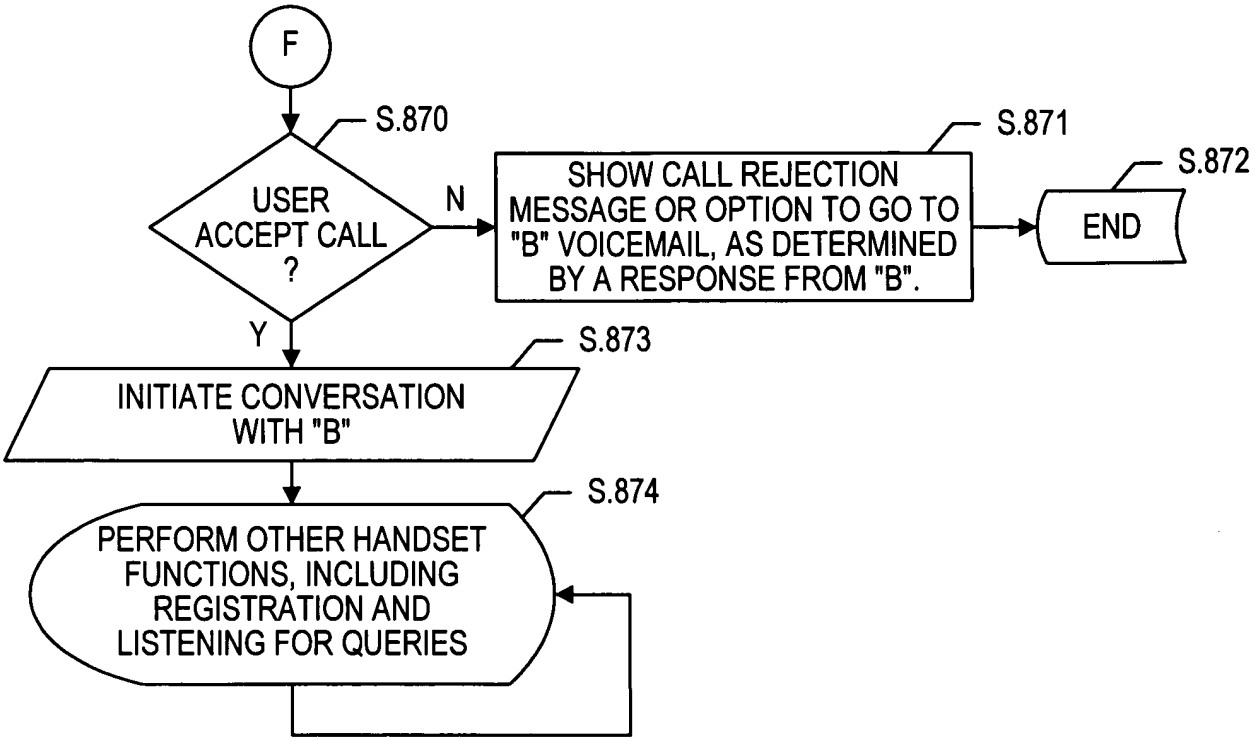

F
S.870
USER ACCEPT CALL ?
N
S.871
SHOW CALL REJECTION MESSAGE OR OPTION TO GO TO "B" VOICEMAIL, AS DETERMINED BY A RESPONSE FROM "B".
S.872
END
Y
S.873
INITIATE CONVERSATION WITH "B"
S.874
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING REGISTRATION AND LISTENING FOR QUERIES

FIG. 26B

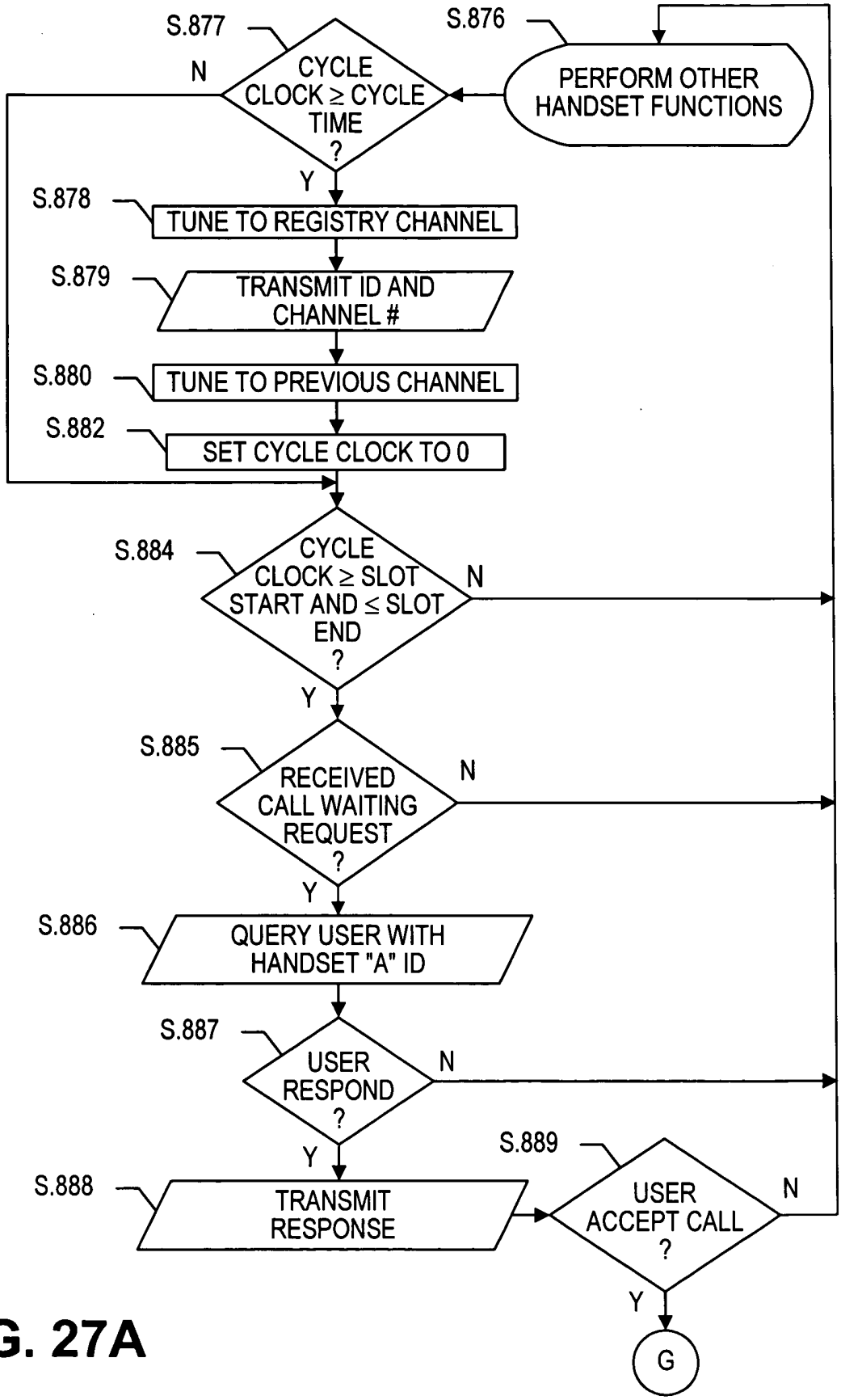

S.877
CYCLE CLOCK ≥ CYCLE TIME ?
N
Y
S.876
PERFORM OTHER HANDSET FUNCTIONS
S.878
TUNE TO REGISTRY CHANNEL
S.879
TRANSMIT ID AND CHANNEL #
S.880
TUNE TO PREVIOUS CHANNEL
S.882
SET CYCLE CLOCK TO 0
S.884
CYCLE CLOCK ≥ SLOT START AND ≤ SLOT END ?
N
Y
S.885
RECEIVED CALL WAITING REQUEST ?
N
Y
S.886
QUERY USER WITH HANDSET "A" ID
S.887
USER RESPOND ?
N
Y
S.888
TRANSMIT RESPONSE
S.889
USER ACCEPT CALL ?
N
Y
G

FIG. 27A

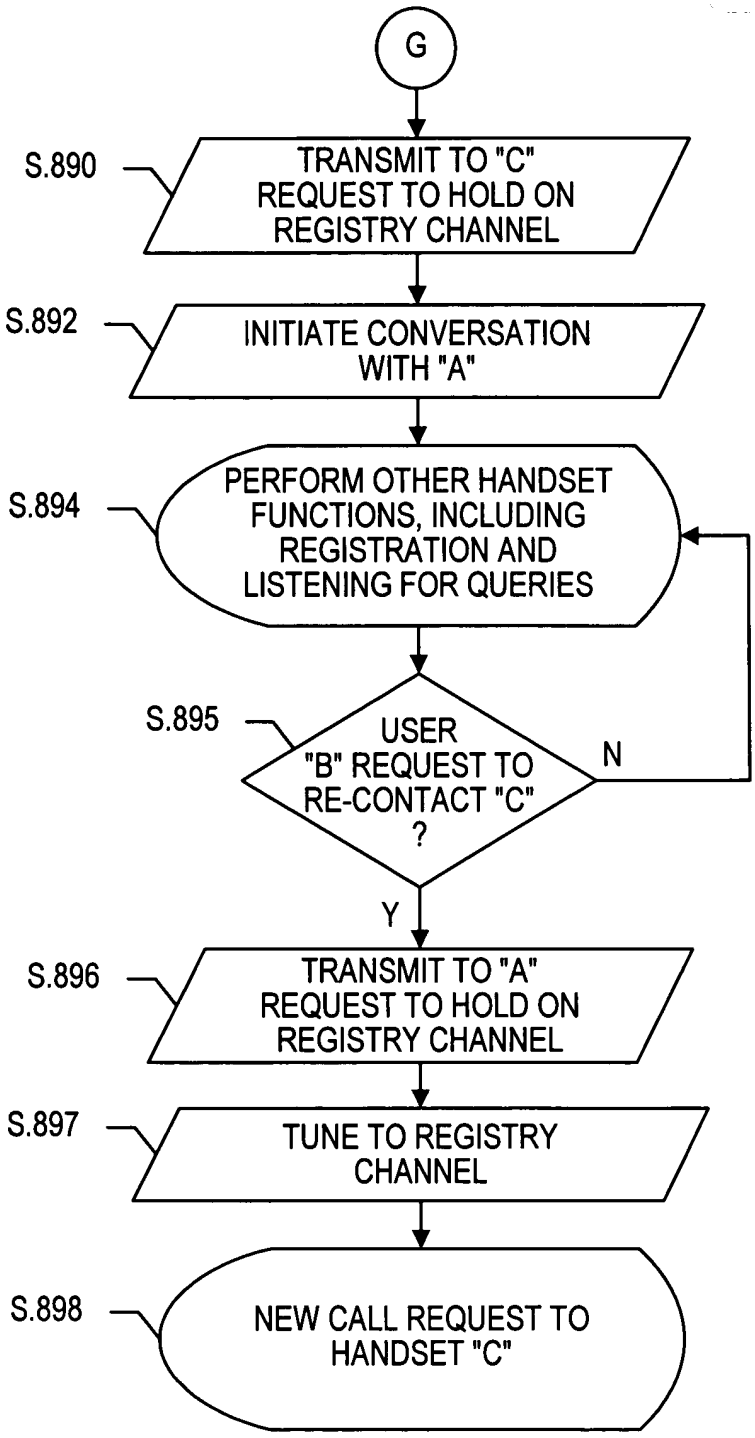

G
S.890
TRANSMIT TO "C" REQUEST TO HOLD ON REGISTRY CHANNEL
S.892
INITIATE CONVERSATION WITH "A"
S.894
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING REGISTRATION AND LISTENING FOR QUERIES
S.895
USER "B" REQUEST TO RE-CONTACT "C" ?
N
Y
S.896
TRANSMIT TO "A" REQUEST TO HOLD ON REGISTRY CHANNEL
S.897
TUNE TO REGISTRY CHANNEL
S.898
NEW CALL REQUEST TO HANDSET "C"

FIG. 27B

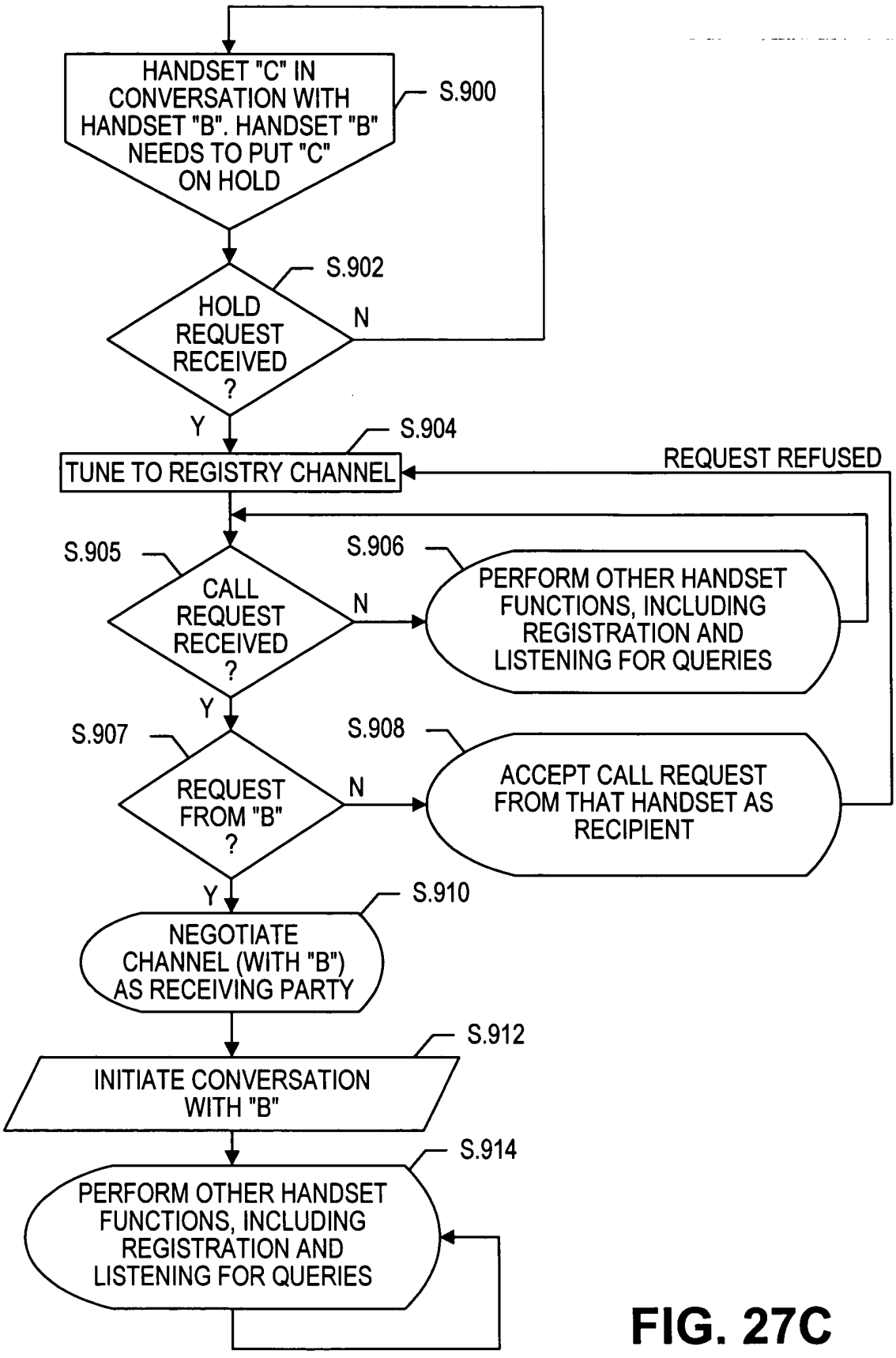

HANDSET "C" IN CONVERSATION WITH HANDSET "B". HANDSET "B" NEEDS TO PUT "C" ON HOLD
S.900
S.902
HOLD REQUEST RECEIVED ?
N
Y
S.904
TUNE TO REGISTRY CHANNEL
REQUEST REFUSED
S.905
CALL REQUEST RECEIVED ?
N
S.906
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING REGISTRATION AND LISTENING FOR QUERIES
Y
S.907
REQUEST FROM "B" ?
N
S.908
ACCEPT CALL REQUEST FROM THAT HANDSET AS RECIPIENT
Y
S.910
NEGOTIATE CHANNEL (WITH "B") AS RECEIVING PARTY
S.912
INITIATE CONVERSATION WITH "B"
S.914
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING REGISTRATION AND LISTENING FOR QUERIES

FIG. 27C

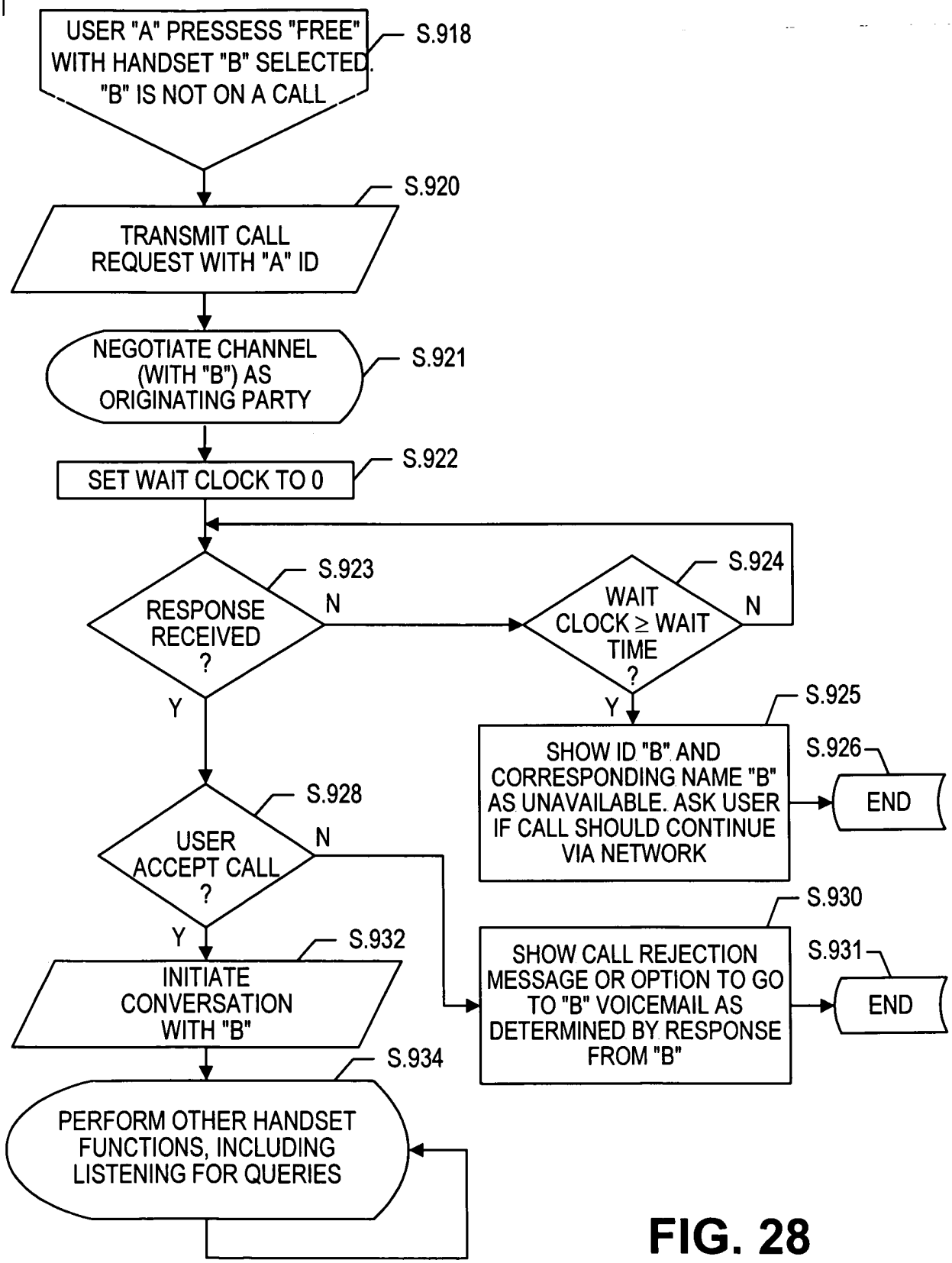

USER "A" PRESSESS "FREE" WITH HANDSET "B" SELECTED. "B" IS NOT ON A CALL
S.918
S.920
TRANSMIT CALL REQUEST WITH "A" ID
NEGOTIATE CHANNEL (WITH "B") AS ORIGINATING PARTY
S.921
SET WAIT CLOCK TO 0
S.922
RESPONSE RECEIVED ?
S.923
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.924
N
Y
SHOW ID "B" AND CORRESPONDING NAME "B" AS UNAVAILABLE. ASK USER IF CALL SHOULD CONTINUE VIA NETWORK
S.925
S.926
END
USER ACCEPT CALL ?
S.928
N
Y
INITIATE CONVERSATION WITH "B"
S.932
SHOW CALL REJECTION MESSAGE OR OPTION TO GO TO "B" VOICEMAIL AS DETERMINED BY RESPONSE FROM "B"
S.930
S.931
END
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES
S.934

FIG. 28

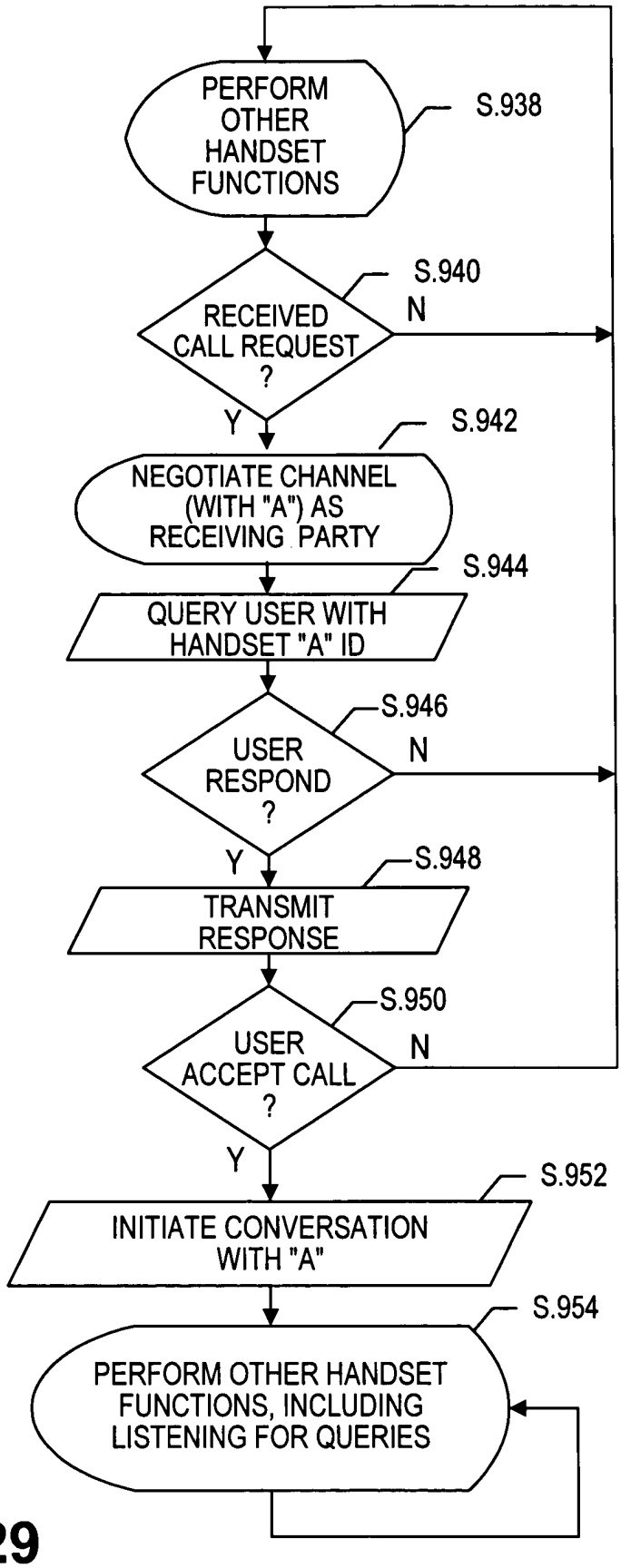
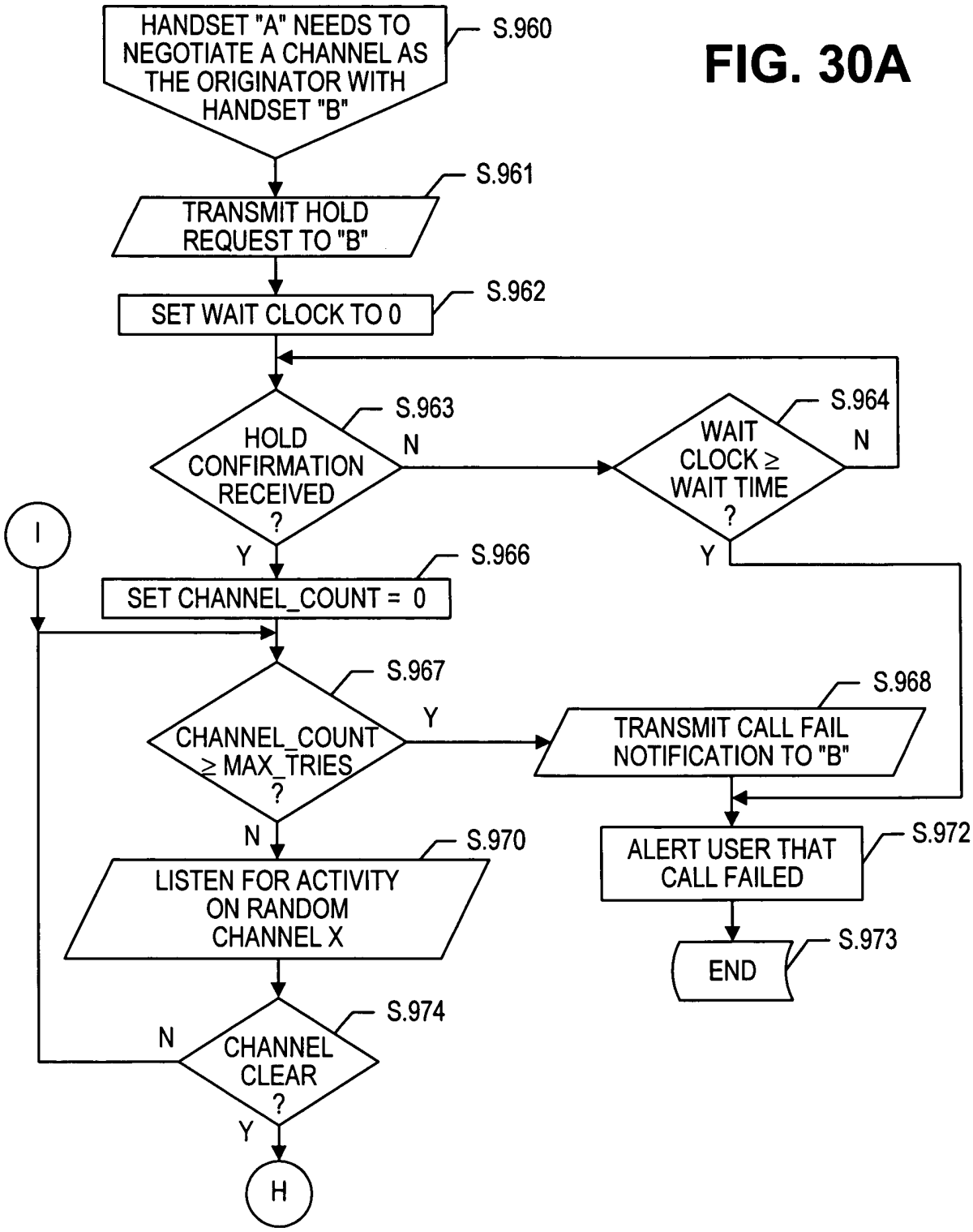

PERFORM OTHER HANDSET FUNCTIONS
S.938
RECEIVED CALL REQUEST ?
S.940
N
Y
NEGOTIATE CHANNEL (WITH "A") AS RECEIVING PARTY
S.942
QUERY USER WITH HANDSET "A" ID
S.944
USER RESPOND ?
S.946
N
Y
TRANSMIT RESPONSE
S.948
USER ACCEPT CALL ?
S.950
N
Y
INITIATE CONVERSATION WITH "A"
S.952
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES
S.954

FIG. 29

FIG. 30A


HANDSET "A" NEEDS TO NEGOTIATE A CHANNEL AS THE ORIGINATOR WITH HANDSET "B"
S.960
TRANSMIT HOLD REQUEST TO "B"
S.961
SET WAIT CLOCK TO 0
S.962
HOLD CONFIRMATION RECEIVED ?
S.963
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.964
N
Y
I
SET CHANNEL_COUNT = 0
S.966
CHANNEL_COUNT ≥ MAX_TRIES ?
S.967
Y
N
TRANSMIT CALL FAIL NOTIFICATION TO "B"
S.968
ALERT USER THAT CALL FAILED
S.972
END
S.973
LISTEN FOR ACTIVITY ON RANDOM CHANNEL X
S.970
CHANNEL CLEAR ?
S.974
N
Y
H

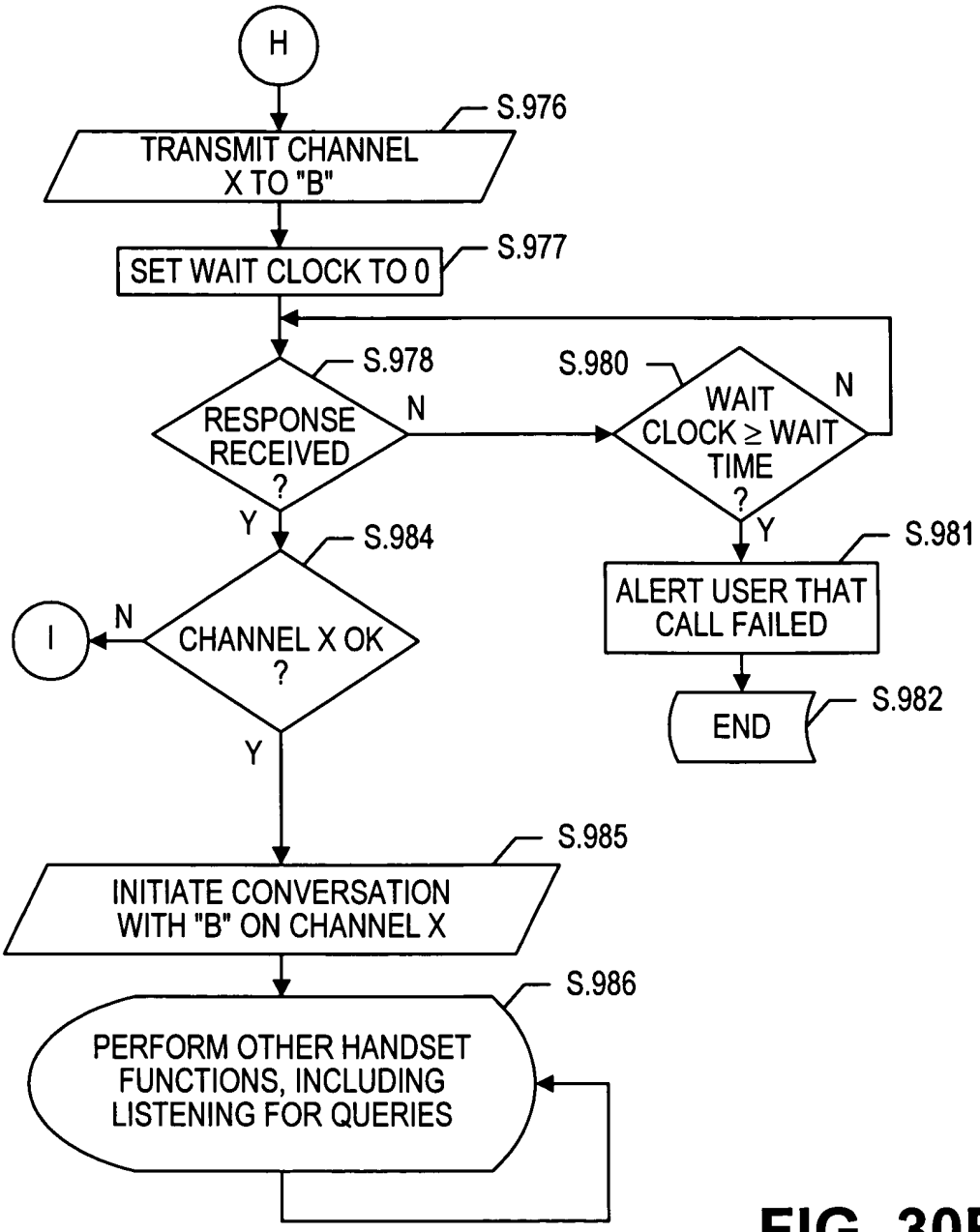

H
S.976
TRANSMIT CHANNEL X TO "B"
S.977
SET WAIT CLOCK TO 0
S.978
RESPONSE RECEIVED ?
N
S.980
WAIT CLOCK ≥ WAIT TIME ?
N
Y
S.984
CHANNEL X OK ?
N
I
Y
S.981
ALERT USER THAT CALL FAILED
S.982
END
S.985
INITIATE CONVERSATION WITH "B" ON CHANNEL X
S.986
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES

FIG. 30B

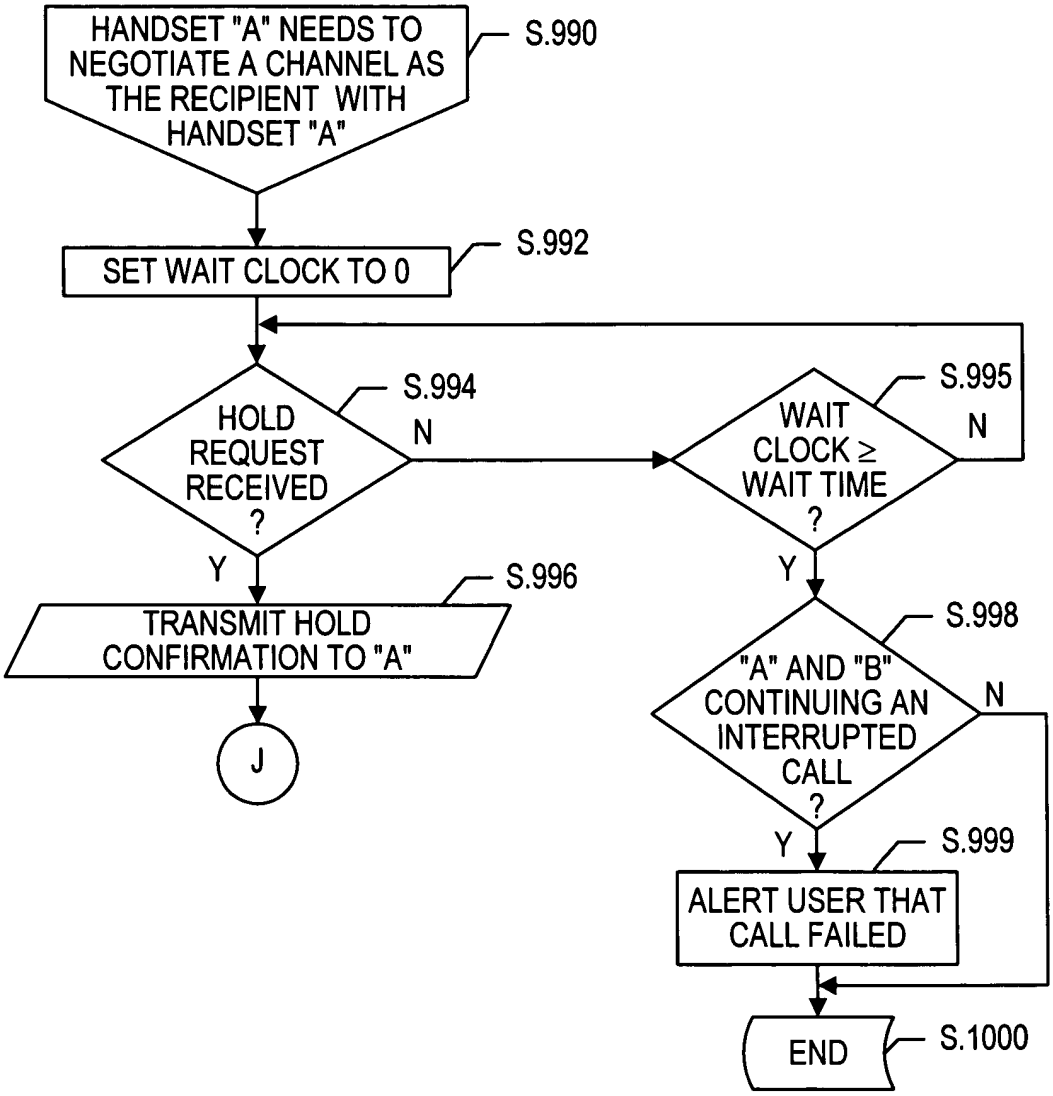

HANDSET "A" NEEDS TO NEGOTIATE A CHANNEL AS THE RECIPIENT WITH HANDSET "A"
S.990
SET WAIT CLOCK TO 0
S.992
HOLD REQUEST RECEIVED ?
S.994
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.995
N
Y
TRANSMIT HOLD CONFIRMATION TO "A"
S.996
J
"A" AND "B" CONTINUING AN INTERRUPTED CALL ?
S.998
N
Y
ALERT USER THAT CALL FAILED
S.999
END
S.1000

FIG.31A

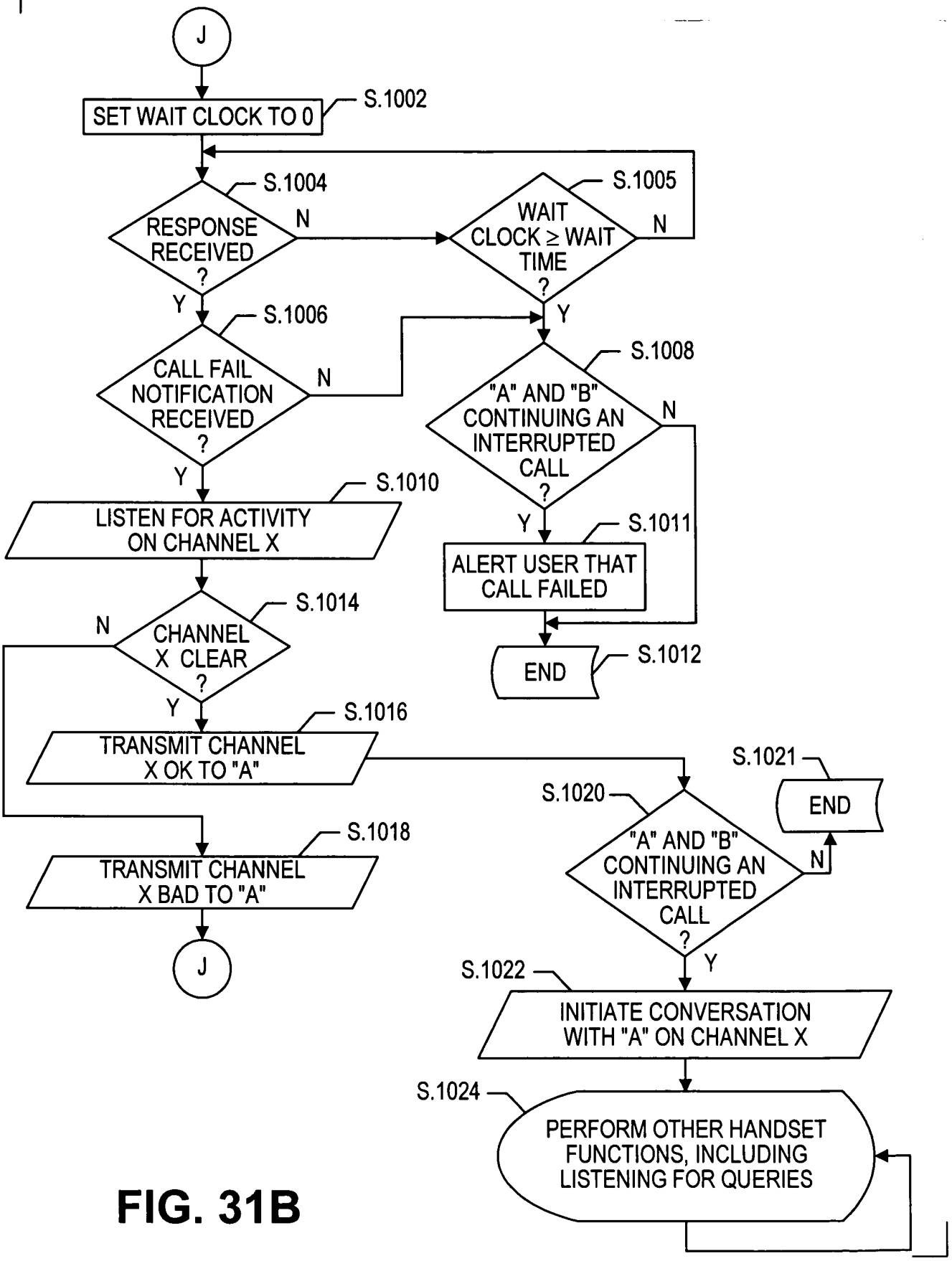

J
SET WAIT CLOCK TO 0
S.1002
S.1004
RESPONSE RECEIVED ?
N
Y
S.1005
WAIT CLOCK ≥ WAIT TIME ?
N
Y
S.1006
CALL FAIL NOTIFICATION RECEIVED ?
N
Y
S.1008
"A" AND "B" CONTINUING AN INTERRUPTED CALL ?
N
Y
S.1010
LISTEN FOR ACTIVITY ON CHANNEL X
S.1011
ALERT USER THAT CALL FAILED
S.1014
CHANNEL X CLEAR ?
N
Y
END
S.1012
S.1016
TRANSMIT CHANNEL X OK TO "A"
S.1021
END
S.1020
"A" AND "B" CONTINUING AN INTERRUPTED CALL ?
N
Y
S.1018
TRANSMIT CHANNEL X BAD TO "A"
J
S.1022
INITIATE CONVERSATION WITH "A" ON CHANNEL X
S.1024
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES

FIG. 31B

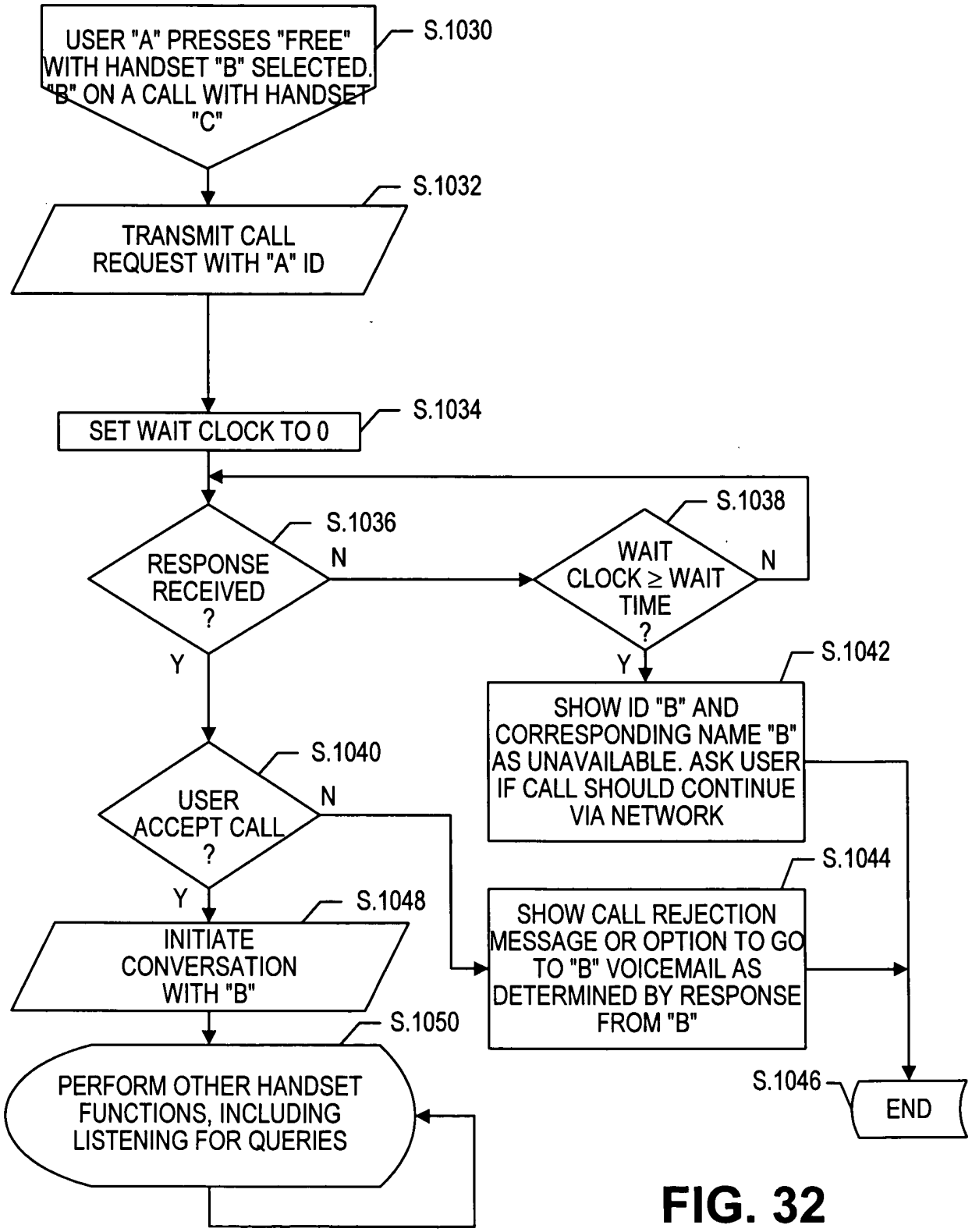

USER "A" PRESSES "FREE" WITH HANDSET "B" SELECTED. "B" ON A CALL WITH HANDSET "C"
S.1030
TRANSMIT CALL REQUEST WITH "A" ID
S.1032
SET WAIT CLOCK TO 0
S.1034
RESPONSE RECEIVED ?
S.1036
N
Y
WAIT CLOCK ≥ WAIT TIME ?
S.1038
N
Y
USER ACCEPT CALL ?
S.1040
N
Y
SHOW ID "B" AND CORRESPONDING NAME "B" AS UNAVAILABLE. ASK USER IF CALL SHOULD CONTINUE VIA NETWORK
S.1042
SHOW CALL REJECTION MESSAGE OR OPTION TO GO TO "B" VOICEMAIL AS DETERMINED BY RESPONSE FROM "B"
S.1044
INITIATE CONVERSATION WITH "B"
S.1048
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES
S.1050
END
S.1046

FIG. 32

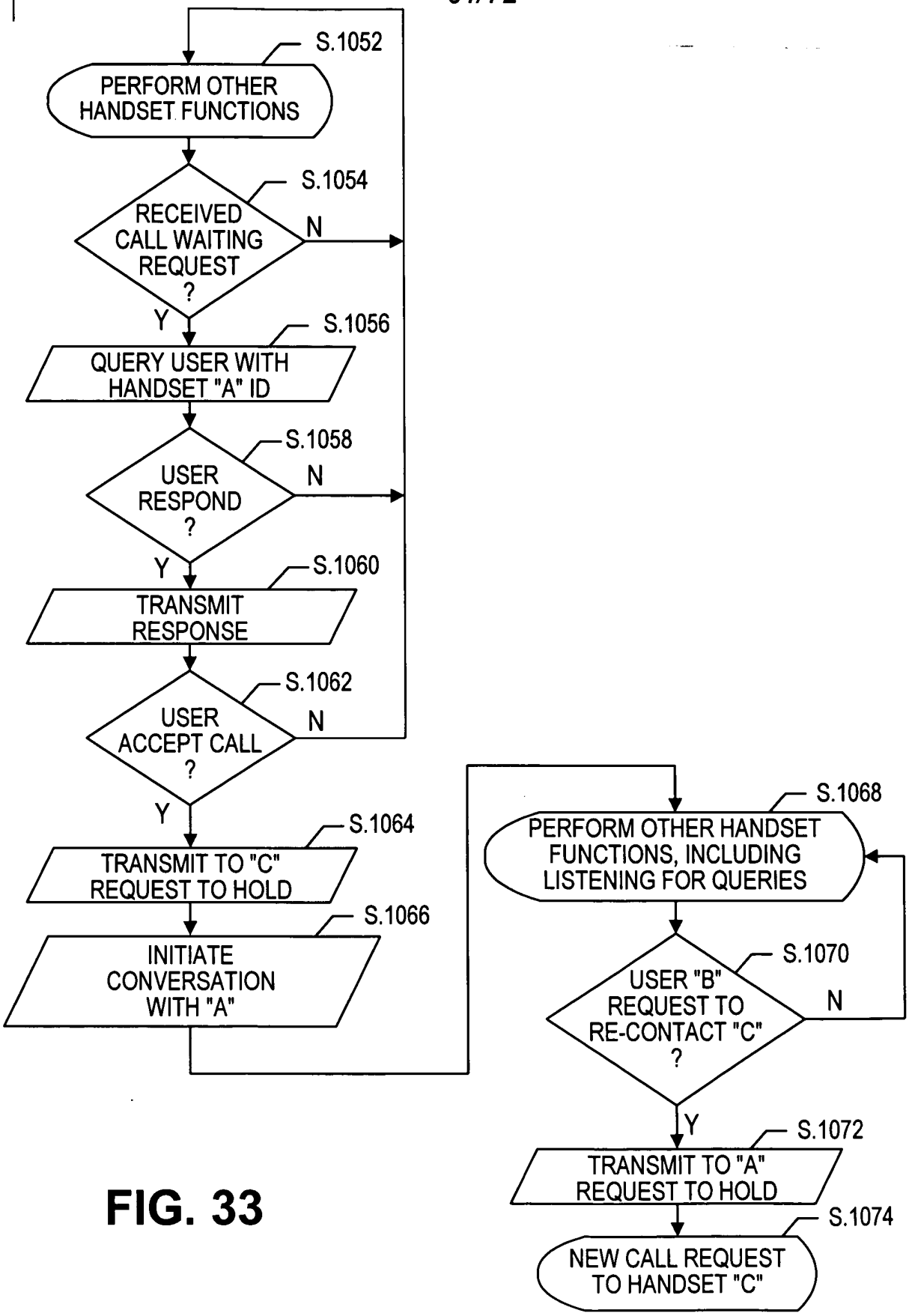

S.1052
PERFORM OTHER HANDSET FUNCTIONS
S.1054
RECEIVED CALL WAITING REQUEST ?
N
Y
S.1056
QUERY USER WITH HANDSET "A" ID
S.1058
USER RESPOND ?
N
Y
S.1060
TRANSMIT RESPONSE
S.1062
USER ACCEPT CALL ?
N
Y
S.1064
TRANSMIT TO "C" REQUEST TO HOLD
S.1066
INITIATE CONVERSATION WITH "A"
S.1068
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES
S.1070
USER "B" REQUEST TO RE-CONTACT "C" ?
N
Y
S.1072
TRANSMIT TO "A" REQUEST TO HOLD
S.1074
NEW CALL REQUEST TO HANDSET "C"

FIG. 33

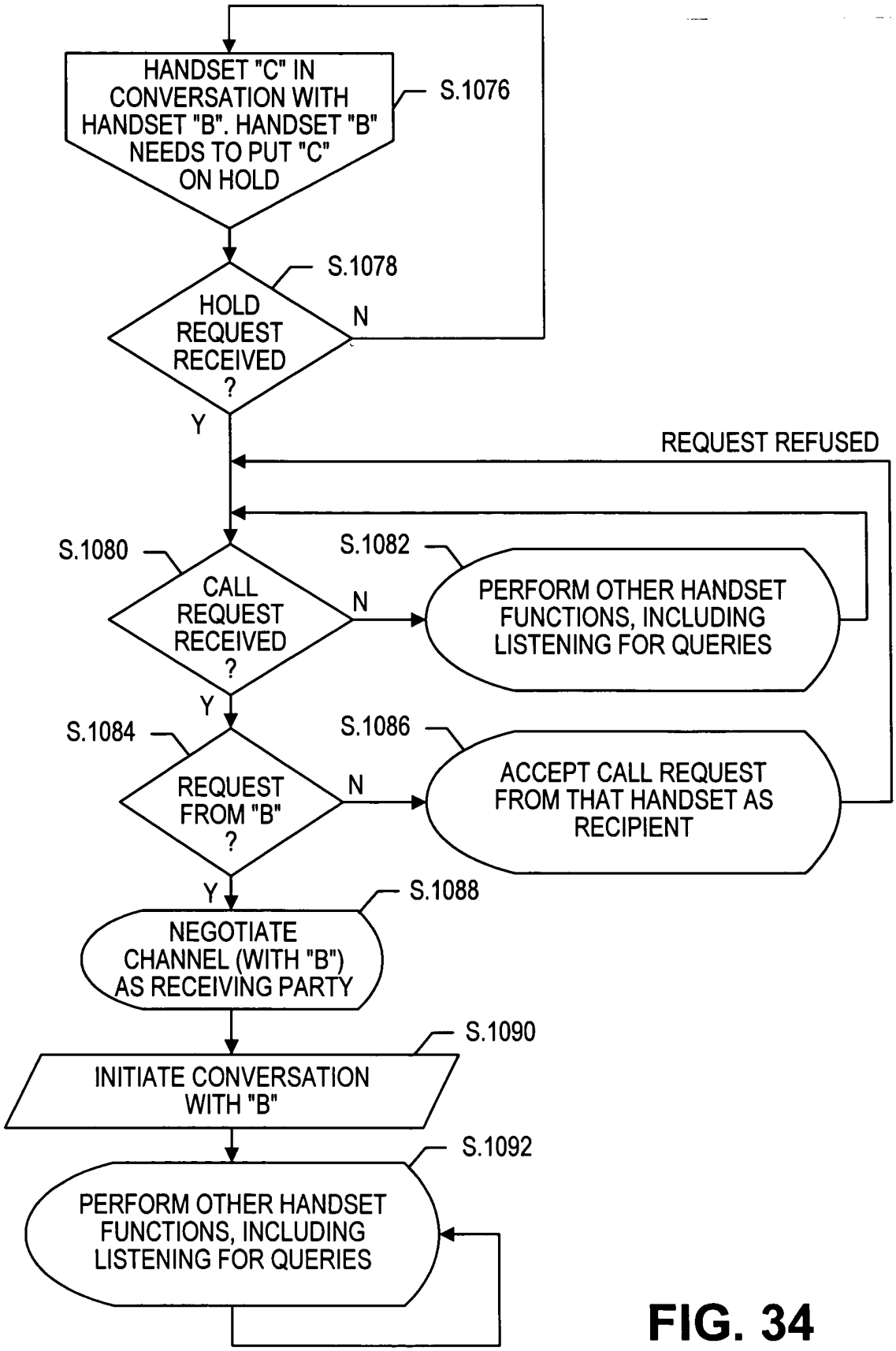

HANDSET "C" IN CONVERSATION WITH HANDSET "B". HANDSET "B" NEEDS TO PUT "C" ON HOLD
S.1076
S.1078
HOLD REQUEST RECEIVED ?
N
Y
REQUEST REFUSED
S.1080
CALL REQUEST RECEIVED ?
N
S.1082
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES
Y
S.1084
REQUEST FROM "B" ?
N
S.1086
ACCEPT CALL REQUEST FROM THAT HANDSET AS RECIPIENT
Y
S.1088
NEGOTIATE CHANNEL (WITH "B") AS RECEIVING PARTY
S.1090
INITIATE CONVERSATION WITH "B"
S.1092
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES

FIG. 34

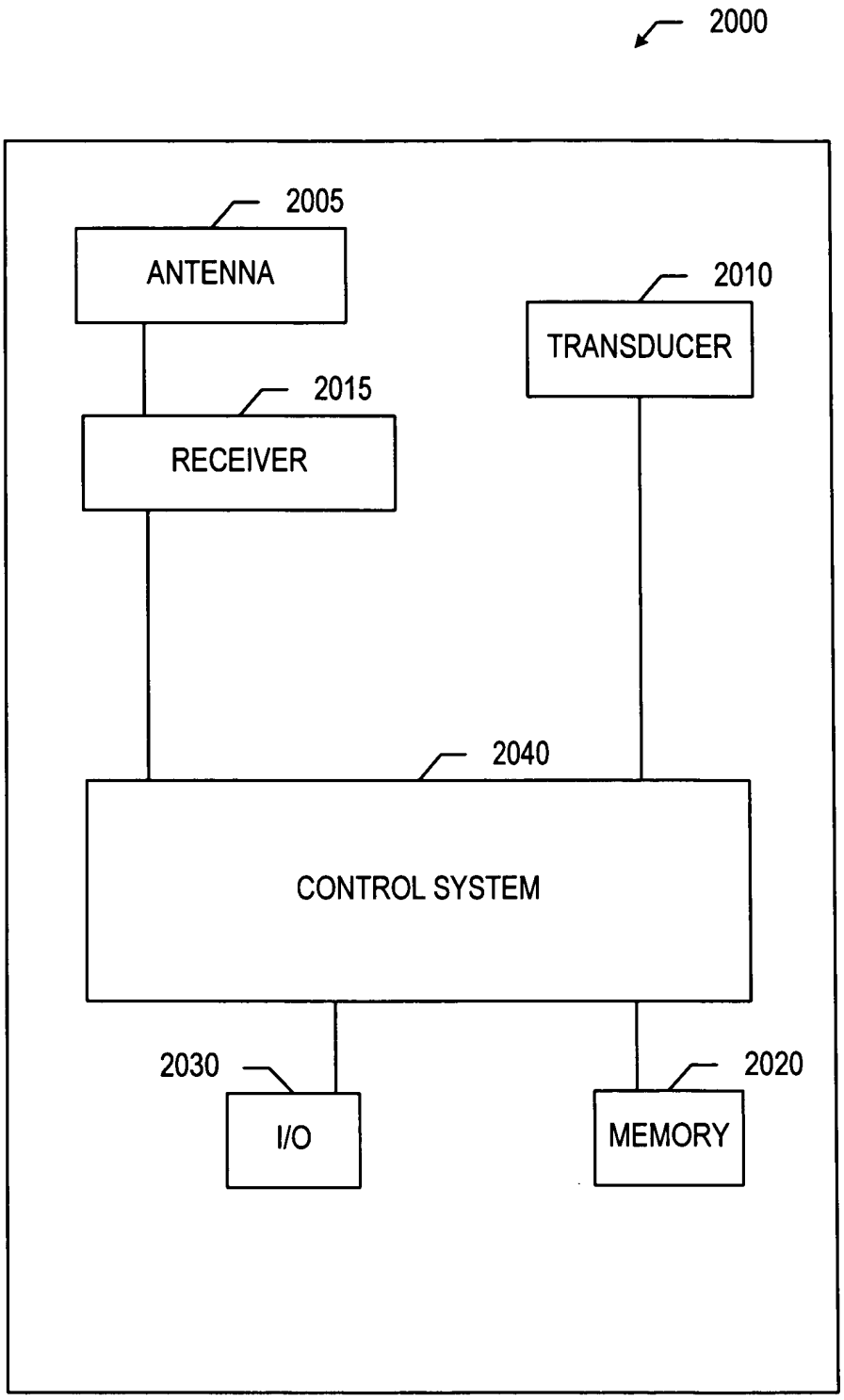

2000
2005
ANTENNA
2010
TRANSDUCER
2015
RECEIVER
2040
CONTROL SYSTEM
2030
I/O
2020
MEMORY

FIG. 35

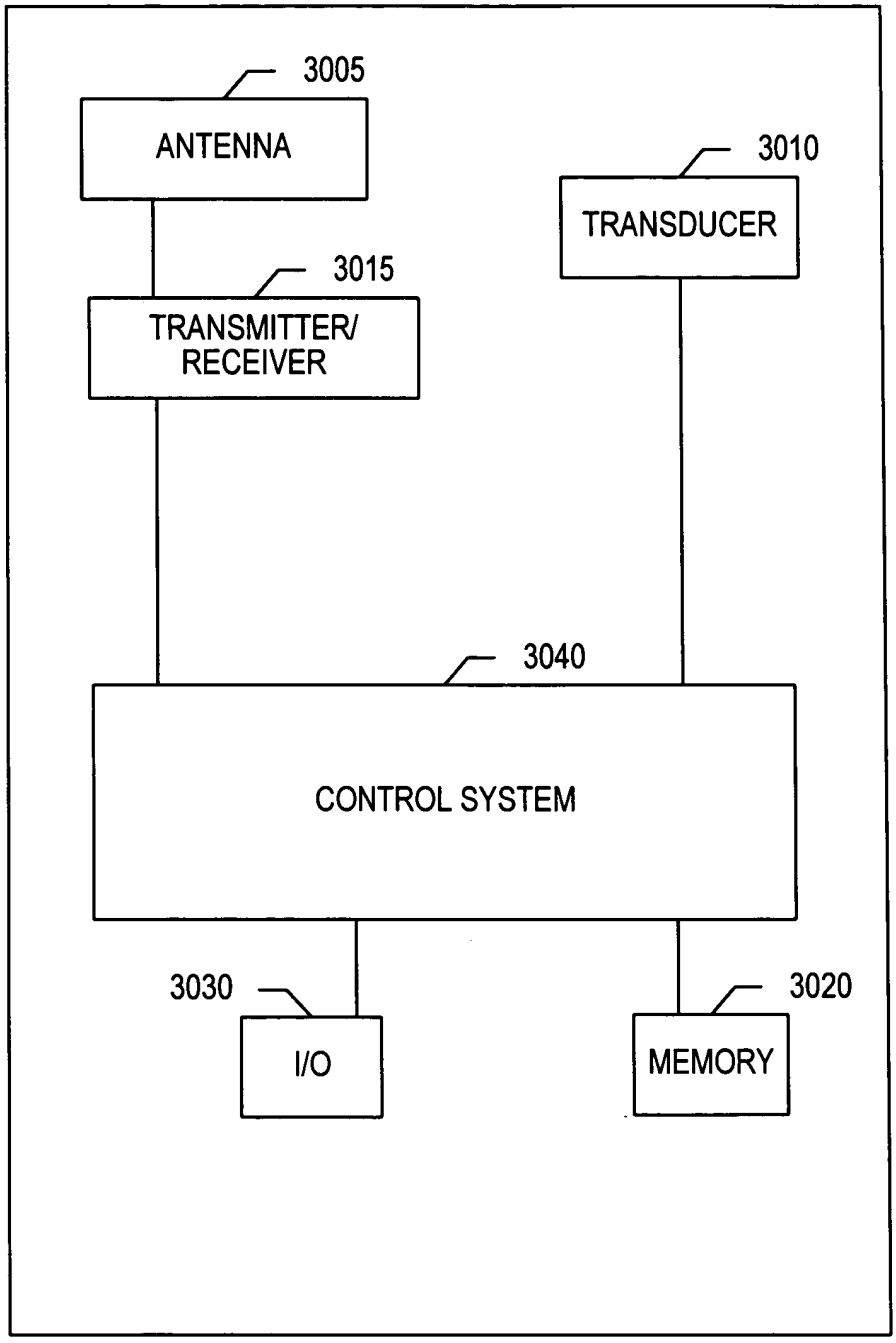
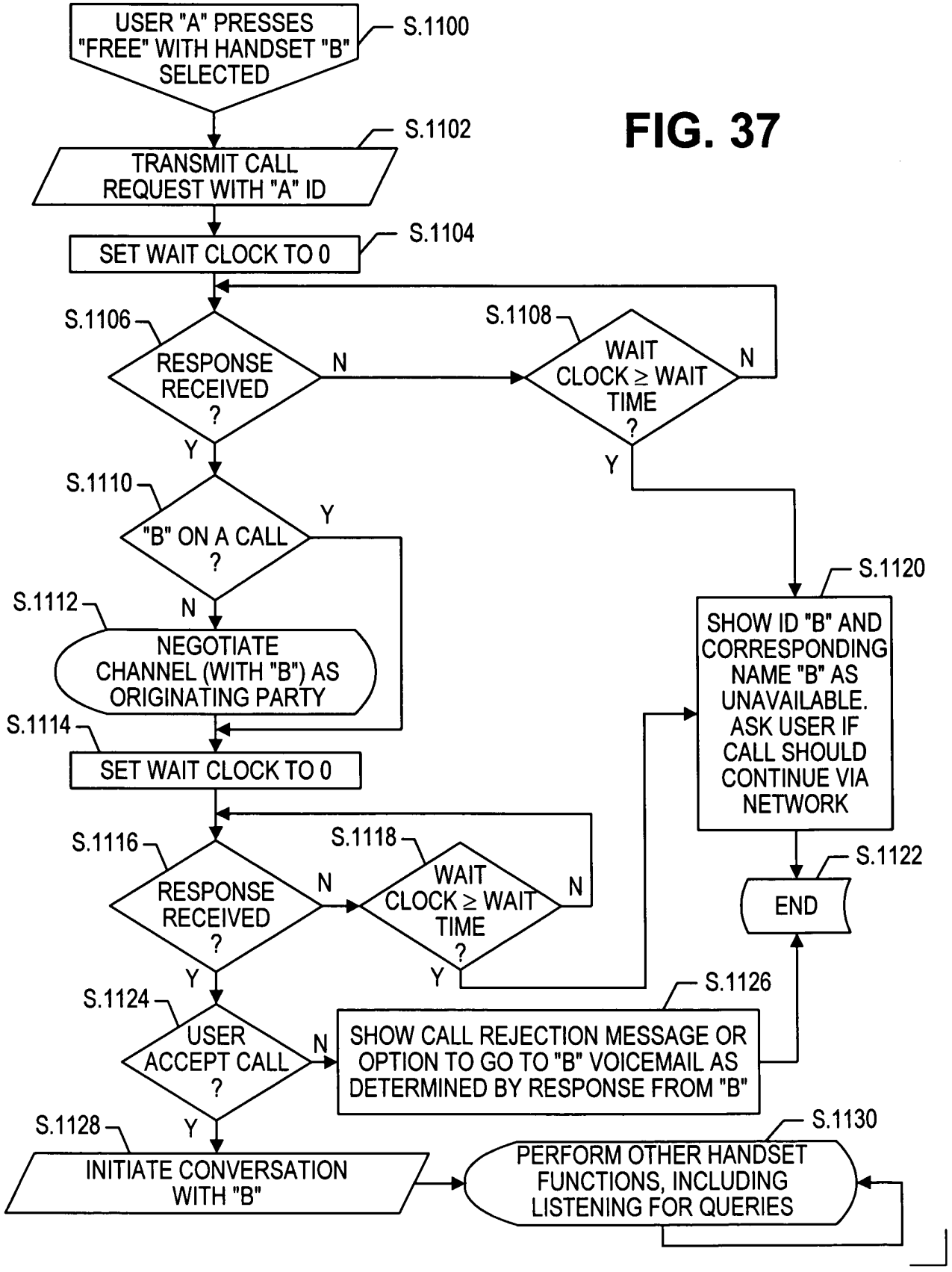

3000
3005
ANTENNA
3010
TRANSDUCER
3015
TRANSMITTER/
RECEIVER
3040
CONTROL SYSTEM
3030
I/O
3020
MEMORY

FIG. 36

FIG. 37


USER "A" PRESSES "FREE" WITH HANDSET "B" SELECTED
S.1100
TRANSMIT CALL REQUEST WITH "A" ID
S.1102
SET WAIT CLOCK TO 0
S.1104
S.1106
RESPONSE RECEIVED ?
N
Y
S.1108
WAIT CLOCK ≥ WAIT TIME ?
N
Y
S.1110
"B" ON A CALL ?
Y
N
S.1112
NEGOTIATE CHANNEL (WITH "B") AS ORIGINATING PARTY
S.1114
SET WAIT CLOCK TO 0
S.1116
RESPONSE RECEIVED ?
N
Y
S.1118
WAIT CLOCK ≥ WAIT TIME ?
N
Y
S.1120
SHOW ID "B" AND CORRESPONDING NAME "B" AS UNAVAILABLE. ASK USER IF CALL SHOULD CONTINUE VIA NETWORK
S.1122
END
S.1124
USER ACCEPT CALL ?
N
Y
S.1126
SHOW CALL REJECTION MESSAGE OR OPTION TO GO TO "B" VOICEMAIL AS DETERMINED BY RESPONSE FROM "B"
S.1128
INITIATE CONVERSATION WITH "B"
S.1130
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES

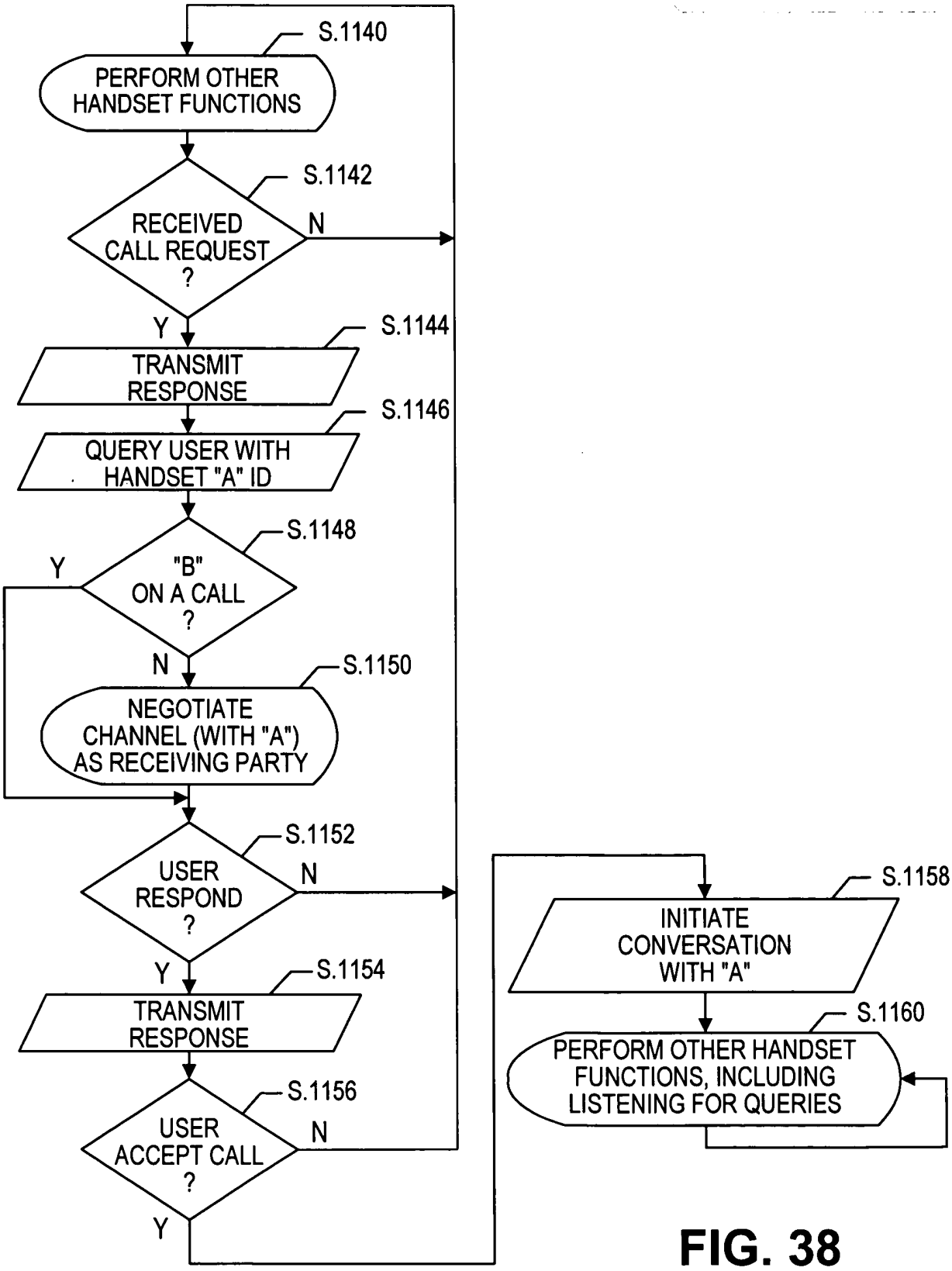

S.1140
PERFORM OTHER HANDSET FUNCTIONS
S.1142
RECEIVED CALL REQUEST ?
N
Y
S.1144
TRANSMIT RESPONSE
S.1146
QUERY USER WITH HANDSET "A" ID
S.1148
"B" ON A CALL ?
Y
N
S.1150
NEGOTIATE CHANNEL (WITH "A") AS RECEIVING PARTY
S.1152
USER RESPOND ?
N
Y
S.1154
TRANSMIT RESPONSE
S.1156
USER ACCEPT CALL ?
N
Y
S.1158
INITIATE CONVERSATION WITH "A"
S.1160
PERFORM OTHER HANDSET FUNCTIONS, INCLUDING LISTENING FOR QUERIES

FIG. 38

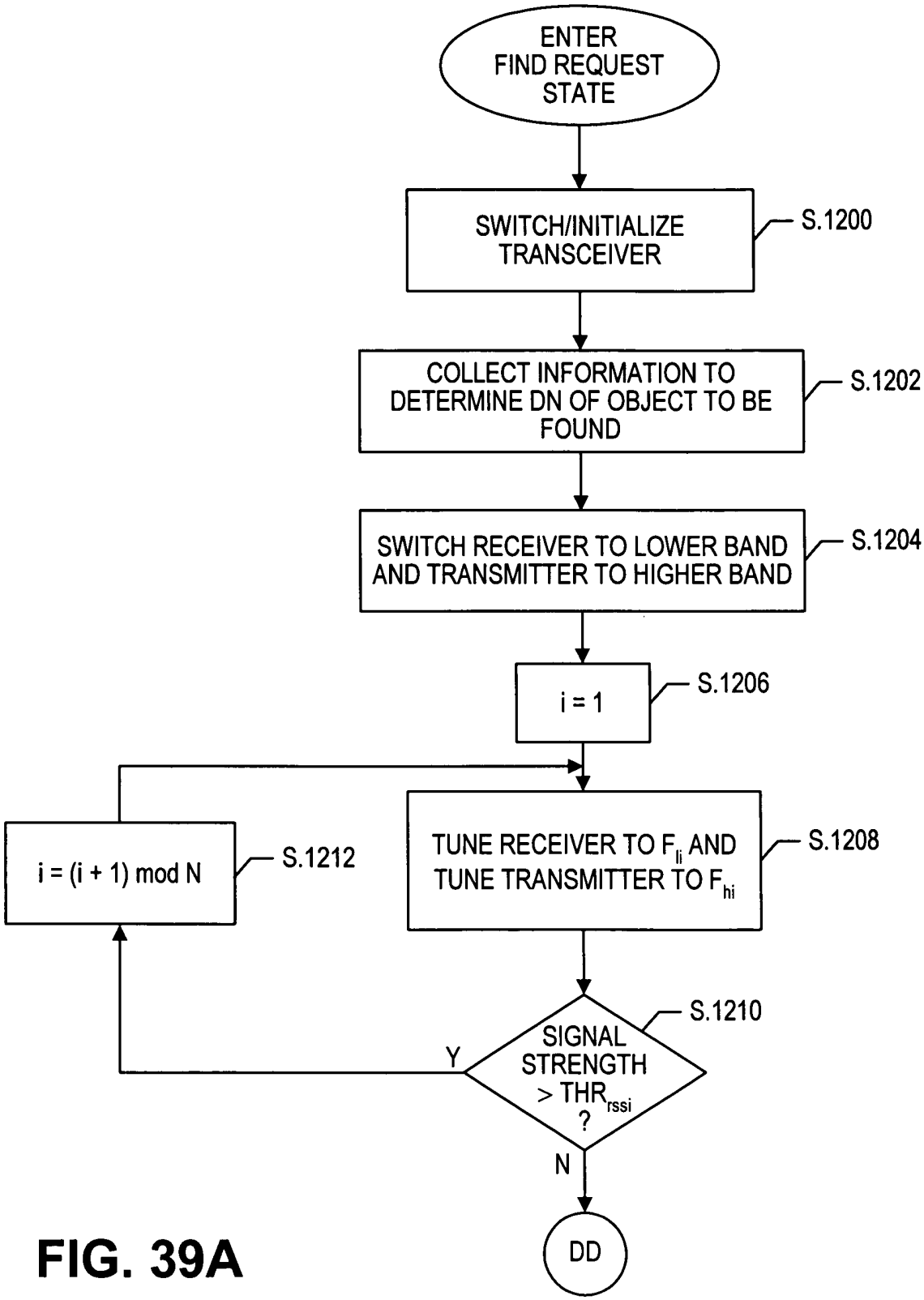

ENTER FIND REQUEST STATE
SWITCH/INITIALIZE TRANSCEIVER
S.1200
COLLECT INFORMATION TO DETERMINE DN OF OBJECT TO BE FOUND
S.1202
SWITCH RECEIVER TO LOWER BAND AND TRANSMITTER TO HIGHER BAND
S.1204
i = 1
S.1206
TUNE RECEIVER TO F_{li} AND TUNE TRANSMITTER TO F_{hi}
S.1208
SIGNAL STRENGTH > THR_{rssi} ?
S.1210
Y
N
i = (i + 1) mod N
S.1212
DD

FIG. 39A

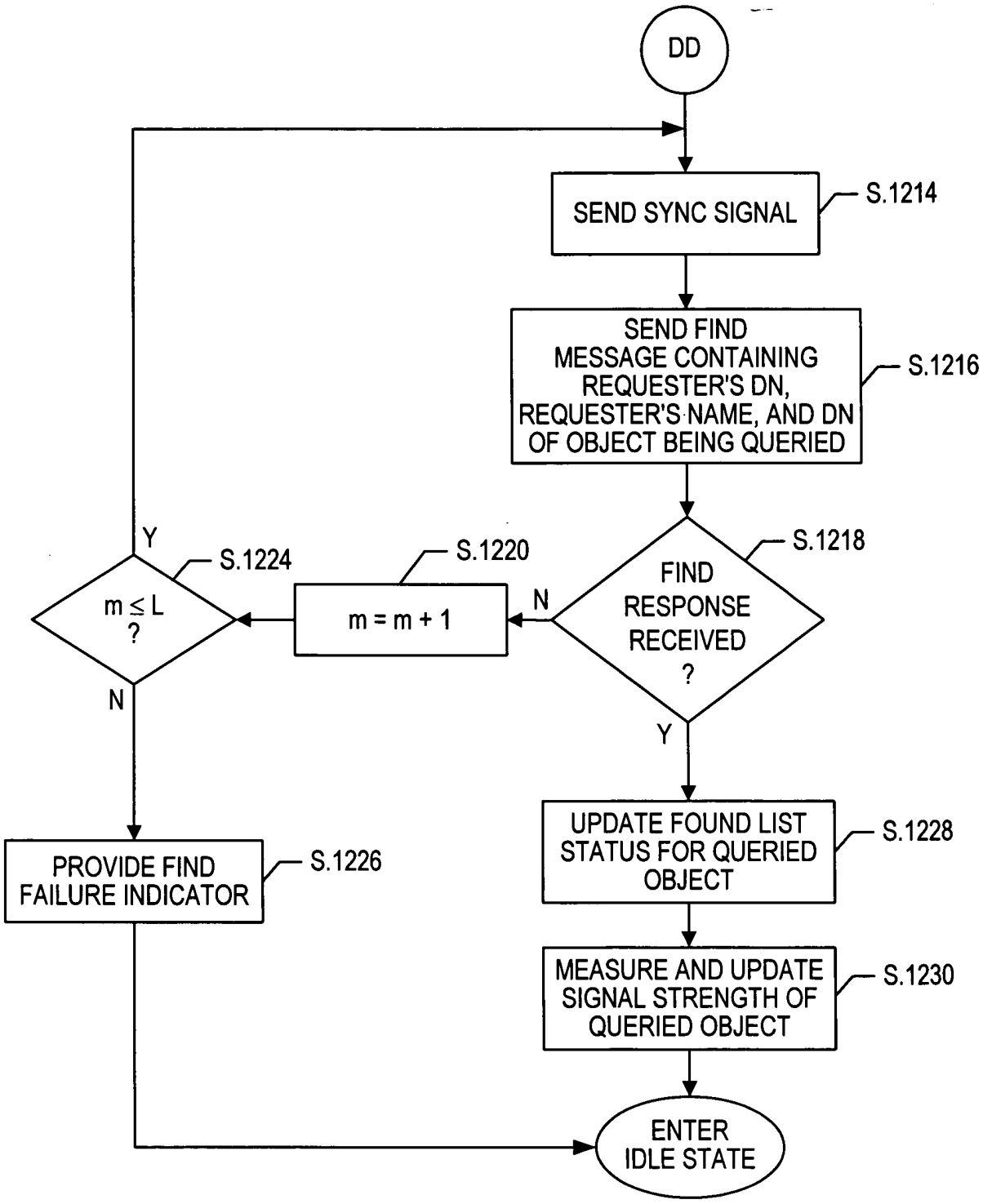

DD
SEND SYNC SIGNAL
S.1214
SEND FIND MESSAGE CONTAINING REQUESTER'S DN, REQUESTER'S NAME, AND DN OF OBJECT BEING QUERIED
S.1216
FIND RESPONSE RECEIVED ?
S.1218
N
m = m + 1
S.1220
m ≤ L ?
S.1224
Y
N
PROVIDE FIND FAILURE INDICATOR
S.1226
Y
UPDATE FOUND LIST STATUS FOR QUERIED OBJECT
S.1228
MEASURE AND UPDATE SIGNAL STRENGTH OF QUERIED OBJECT
S.1230
ENTER IDLE STATE

FIG. 39B

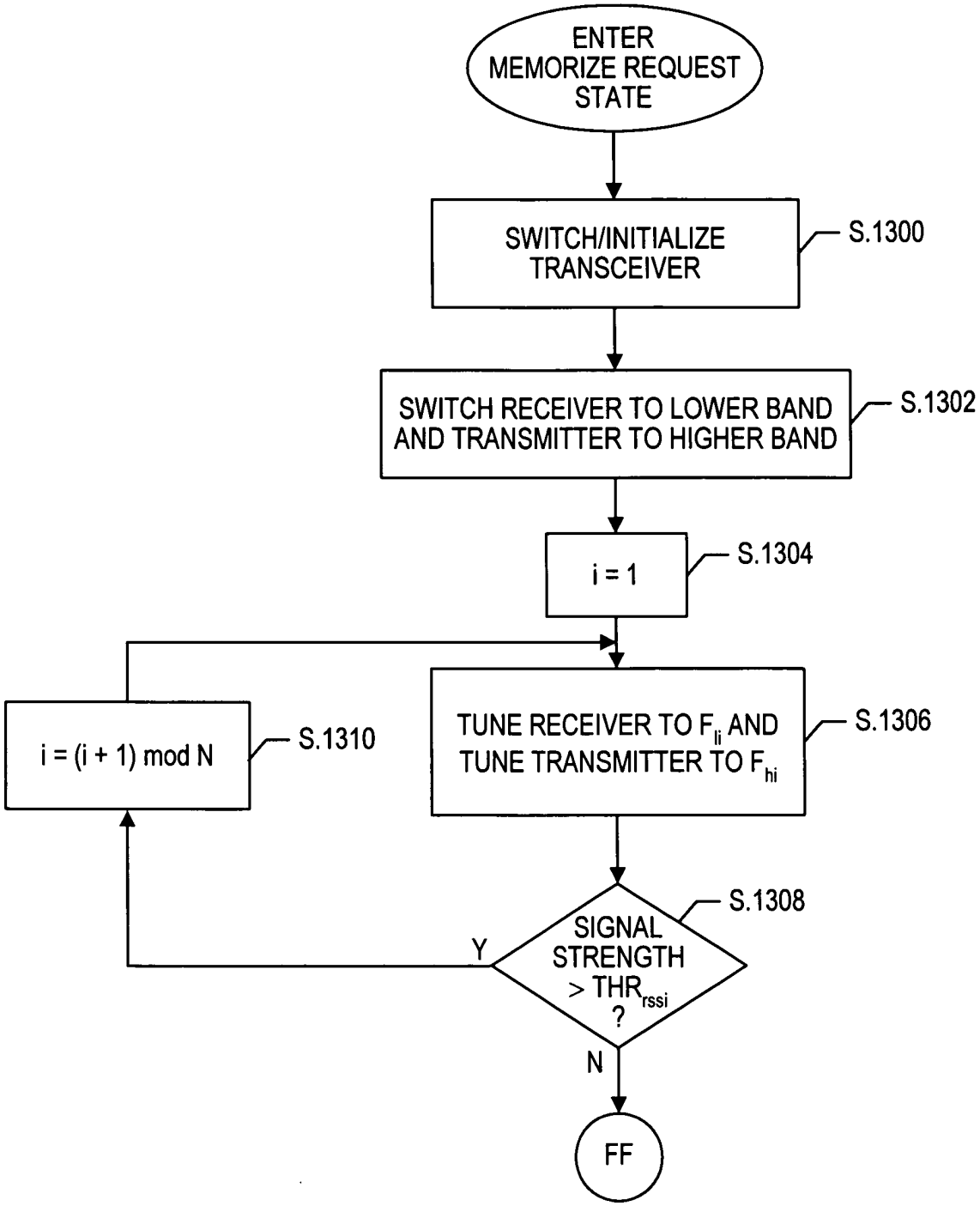

ENTER MEMORIZE REQUEST STATE
SWITCH/INITIALIZE TRANSCEIVER
S.1300
SWITCH RECEIVER TO LOWER BAND AND TRANSMITTER TO HIGHER BAND
S.1302
i = 1
S.1304
TUNE RECEIVER TO F_{li} AND TUNE TRANSMITTER TO F_{hi}
S.1306
SIGNAL STRENGTH > THR_{rssi} ?
S.1308
Y
N
i = (i + 1) mod N
S.1310
FF

FIG. 40A

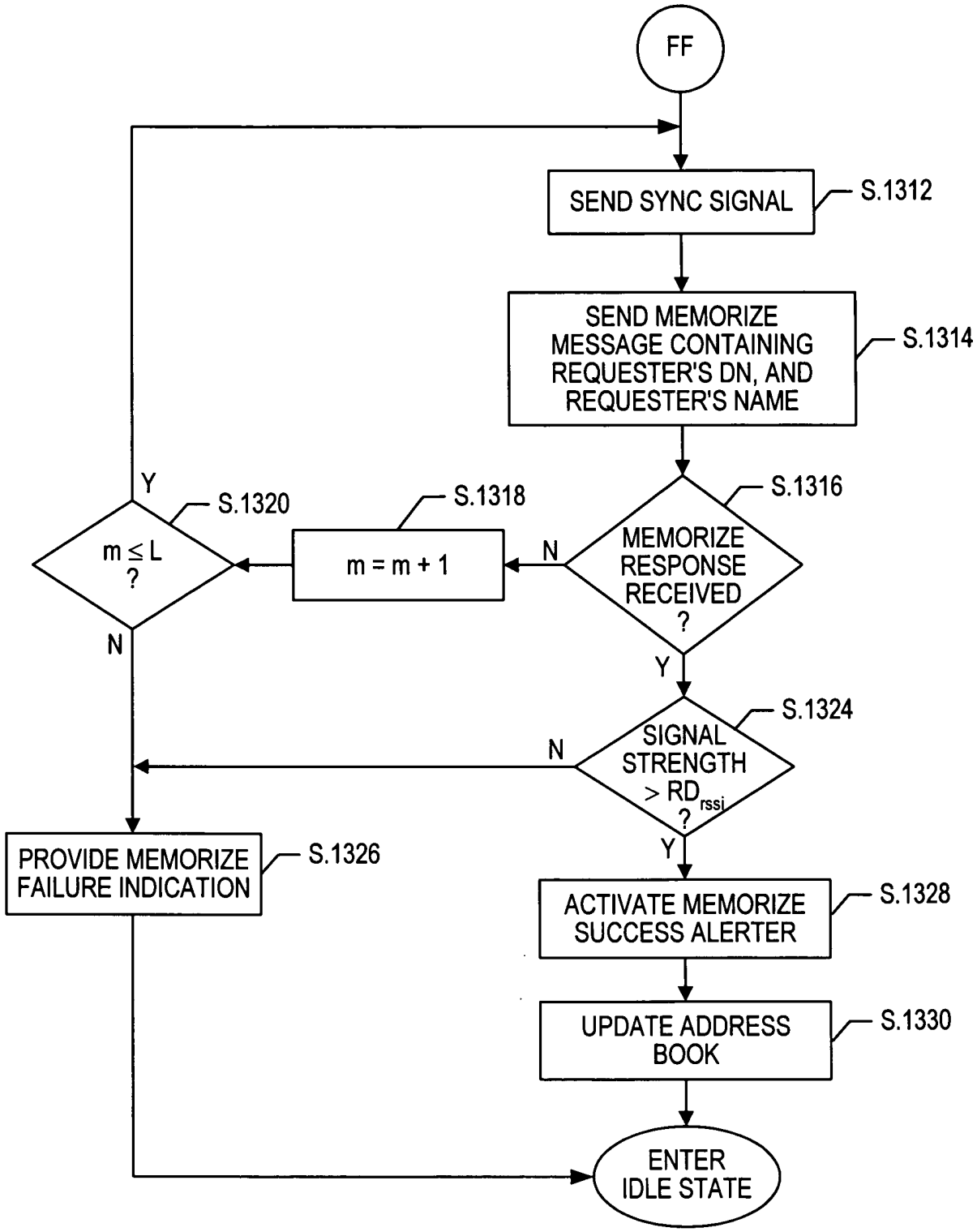

FF
SEND SYNC SIGNAL
S.1312
SEND MEMORIZE MESSAGE CONTAINING REQUESTER'S DN, AND REQUESTER'S NAME
S.1314
MEMORIZE RESPONSE RECEIVED ?
S.1316
Y
N
m = m + 1
S.1318
m ≤ L ?
S.1320
Y
N
SIGNAL STRENGTH > RD rssi ?
S.1324
Y
N
ACTIVATE MEMORIZE SUCCESS ALERTER
S.1328
PROVIDE MEMORIZE FAILURE INDICATION
S.1326
UPDATE ADDRESS BOOK
S.1330
ENTER IDLE STATE

FIG. 40B

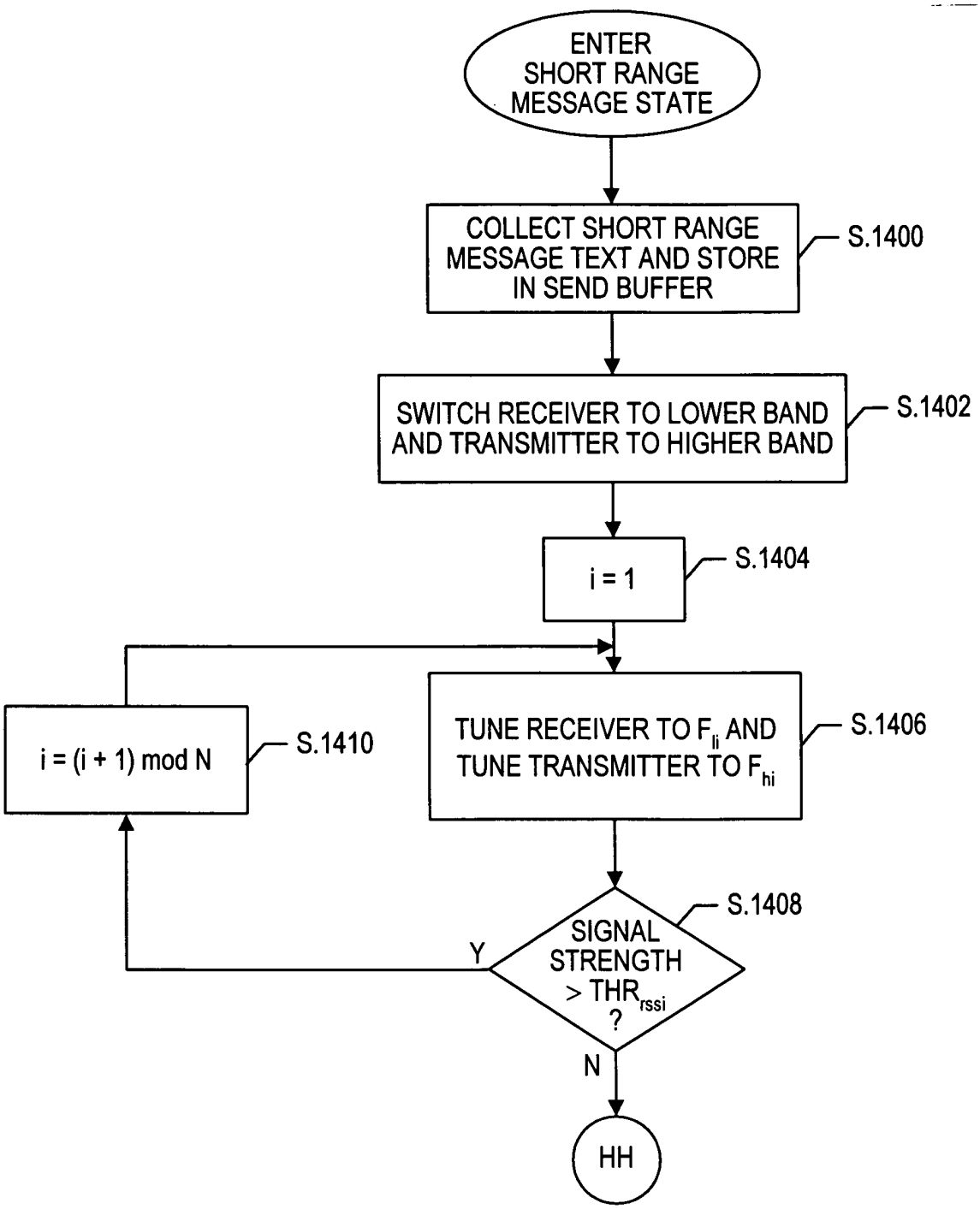

ENTER SHORT RANGE MESSAGE STATE
COLLECT SHORT RANGE MESSAGE TEXT AND STORE IN SEND BUFFER
S.1400
SWITCH RECEIVER TO LOWER BAND AND TRANSMITTER TO HIGHER BAND
S.1402
i = 1
S.1404
TUNE RECEIVER TO F_{li} AND TUNE TRANSMITTER TO F_{hi}
S.1406
SIGNAL STRENGTH > THR_{rssi} ?
S.1408
Y
N
i = (i + 1) mod N
S.1410
HH

FIG. 41A

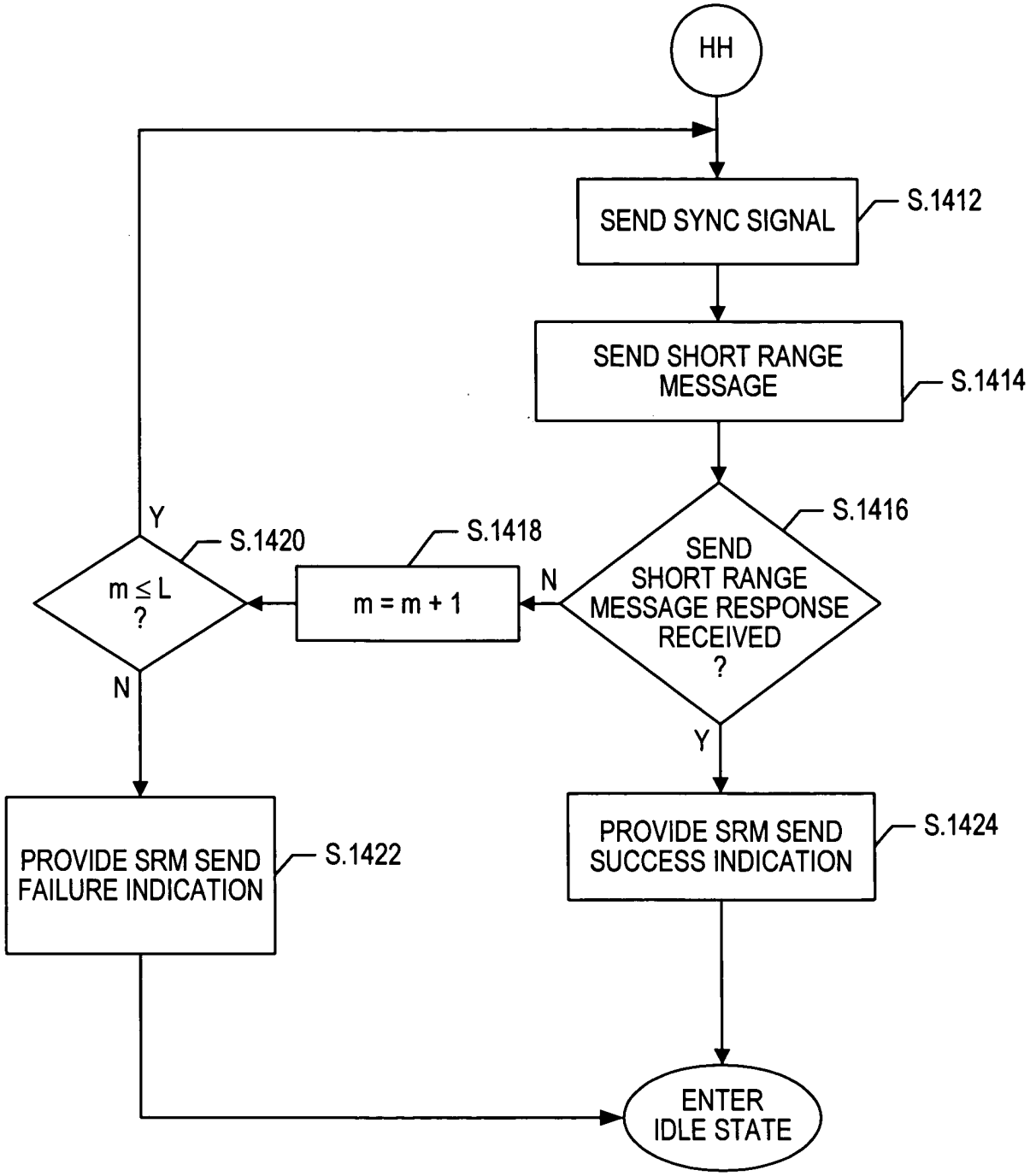

HH
SEND SYNC SIGNAL
S.1412
SEND SHORT RANGE MESSAGE
S.1414
SEND SHORT RANGE MESSAGE RESPONSE RECEIVED ?
S.1416
N
m = m + 1
S.1418
m ≤ L ?
S.1420
Y
N
Y
PROVIDE SRM SEND FAILURE INDICATION
S.1422
PROVIDE SRM SEND SUCCESS INDICATION
S.1424
ENTER IDLE STATE

FIG. 41B